TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

TCEQ INDUSTRIAL WASTEWATER PERMIT APPLICATION

INDUSTRIAL ADMINISTRATIVE REPORT

Complete and submit this checklist with the application.

APPLICANT NAME: City of Corpus Christi

PERMIT NUMBER: WQ000Click to enter text

Check Y for each of the following items included in this application. If an item was not included, check N.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Worksheet 8.0	☐	☒
Administrative Report 1.1	☒	☐	Worksheet 9.0	☐	☒
SPIF	☒	☐	Worksheet 10.0	☐	☒
Core Data Form	☒	☐	Worksheet 11.0	☐	☒
Technical Report 1.0	☒	☐	Worksheet 11.1	☐	☒
Worksheet 1.0	☐	☒	Worksheet 11.2	☐	☒
Worksheet 2.0	☐	☒	Worksheet 11.3	☐	☒
Worksheet 3.0	☐	☒	Original USGS Map	☒	☐
Worksheet 3.1	☐	☒	Affected Landowners Map	☒	☐
Worksheet 3.2	☐	☒	Landowner Disk or Labels	☒	☐
Worksheet 3.3	☐	☒	Flow Diagram	☒	☐
Worksheet 4.0	☒	☐	Site Drawing	☐	☒
Worksheet 4.1	☐	☒	Original Photographs	☒	☐
Worksheet 5.0	☐	☒	Solids Management Program	☐	☒
Worksheet 6.0	☒	☐	Water Balance	☒	☐
Worksheet 7.0	☒	☐			

For Commission Use Only:
Segment Number: _____ County: _____ Expiration Date: _____
Proposed/Current Permit Number: _____ Region: _____

INDUSTRIAL ADMINISTRATIVE REPORT 1.0

The following information **is required** for **all** applications for TPDES permits and TLAPs.

1. TYPE OF APPLICATION AND FEES (Instructions, Page 21)

a. Permit No.: WQ000 Expiration Date:

EPA ID No.: TX0

b. Check the box next to the appropriate application type.

- ☒ New TPDES permit
- ☐ Major amendment with renewal
- ☐ Renewal with changes
- ☐ Minor amendment without renewal
- ☐ Stormwater only discharge
- ☐ New TLAP permit
- ☐ Major amendment without renewal
- ☐ Renewal without changes
- ☐ Minor modification without renewal

c. If applying for an **amendment** or **modification** of a permit, describe the request in detail:

d. Application Fee

Check the box next to the amount submitted for the application fee:

EPA Classification	New	Major Amendment (With or Without Renewal)	Renewal (With or Without Changes)	Minor Amendment/ Minor Modification (Without Renewal)
Minor facility not subject to EPA categorical effluent guidelines (*40 CFR Parts 400-471*)	☒ $350	☐ $350	☐ $315	☐ $150
Minor facility subject to EPA categorical effluent guidelines (*40 CFR Parts 400-471*)	☐ $1,250	☐ $1,250	☐ $1,215	☐ $150
Major facility	N/A *	☐ $2,050	☐ $2,015	☐ $450

* All facilities are designated as minors until formally classified as a major by EPA.

e. Payment Information:

Mailed Check or money order number: 477802

Check or money order amount: $ 350.00

Named printed on check or money order: City of Corpus Christi

ePAY Voucher number:

Copy of voucher attached? ☐ Yes **Attachment**:

2. APPLICANT INFORMATION (Instructions, Pages 21-22)

a. Facility Owner (Owner of the facility must apply for the permit.)

- Provide the legal name of the entity (applicant) applying for this permit: City of Corpus Christi

  (The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.)

- If the applicant is currently a customer with the TCEQ, provide the Customer Number, which can be located using the TCEQ's Central Registry Customer Search[1]: **CN**600131858

- Provide the name and title of the person signing the application. The person must be an executive official meeting signatory requirements in *30 TAC § 305.44*.

  Mr. ☒ Ms. ☐ First/Last Name: Peter Zanoni

  Title: City Manager Credential: Click to enter text.

b. Co-applicant Information

- Provide the legal name of the co-applicant applying for this permit, if applicable: N/A

  (The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.)

- If the co-applicant is currently a customer with the TCEQ, provide the Customer Number, which can be located using the TCEQ's Central Registry Customer Search: **CN**N/A

- Provide the name and title of the person signing the application. The person must be an executive official meeting signatory requirements in *30 TAC § 305.44*.

  Mr. ☐ Ms. ☐ First/Last Name: Click to enter text.

  Title: Click to enter text. Credential: Click to enter text.

- Provide a brief description of the need for a co-permittee: Click to enter text.

c. Core Data Form

Complete the Core Data Form for each customer and include as an attachment. If the customer type selected on the Core Data Form is **Individual**, complete **Attachment 1** of the Administrative Report.

Attachment: A

3. APPLICATION CONTACT INFORMATION (Instructions, Page 22)

If the TCEQ needs additional information regarding this application, who should be contacted?

a. Mr. ☒ Ms. ☐ First/Last Name: Esteban "Steve" Ramos Credential: Click to enter text.

Organization Name: City of Corpus Christi Title: Water Resource Manager

Mailing Address: 2726 Holly Road City/State/ZIP Code: Corpus Christi, TX, 78415

Phone No.: (361)826-2489 Fax No.: (361)826-1889 E-mail: estebanr2@cctexas.com

Check one or both: ☒ Administrative Contact ☐ Technical Contact

[1] http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

b. Mr. ☐ Ms. ☒ First/Last Name: Katie Leatherwood Credential: P.G.

Organization Name: Freese and Nichols, Inc. Title: Environmental Scientist

Mailing Address: 4055 International Plaza, Suite 200 City/State/ZIP Code: Fort Worth, TX 76109

Phone No.: (817) 735-7503 Fax No.: (817) 735-7492 E-mail: katie.leatherwood@freese.com

Check one or both: ☐ Administrative Contact ☒ Technical Contact

Attachment: Click to enter text.

4. PERMIT CONTACT INFORMATION (Instructions, Page 22)

Provide two names of individuals that can be contacted throughout the permit term.

a. Mr. ☒ Ms. ☐ First/Last Name: Esteban "Steve" Ramos Credential: Click to enter text.

Organization Name: City of Corpus Christi Title: Water Resource Manager

Mailing Address: 2726 Holly Road City/State/ZIP Code: Corpus Christi, TX, 76415

Phone No.: (361)826-2489 Fax No.: (361)826-1889 E-mail: estebanr2@cctexas.com

b. Mr. ☐ Ms. ☐ First/Last Name: Click to enter text. Credential: Click to enter text.

Organization Name: Click to enter text. Title: Click to enter text.

Mailing Address: Click to enter text. City/State/ZIP Code: Click to enter text.

Phone No.: Click to enter text. Fax No.: Click to enter text. E-mail: Click to enter text.

Attachment: Click to enter text.

5. BILLING CONTACT INFORMATION (Instructions, Page 22)

The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits **in effect on September 1 of each year**. *The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (form TCEQ-20029).*

Provide the complete mailing address where the annual fee invoice should be mailed and the name and phone number of the permittee's representative responsible for payment of the invoice.

Mr. ☒ Ms. ☐ First/Last Name: Esteban "Steve" Ramos Credential: Click to enter text.

Organization Name: City of Corpus Christi Title: Water Resource Manager

Mailing Address: 2726 Holly Road City/State/ZIP Code: Corpus Christi, TX 78415

Phone No.: (361)826-2489 Fax No.: (361)826-1889 E-mail: estebanr2@cctexas.com

6. DMR/MER CONTACT INFORMATION (Instructions, Page 22)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs.

Mr. ☒ Ms. ☐ First/Last Name: Esteban "Steve" Ramos Credential: Click to enter text.

Organization Name: City of Corpus Christi Title: Water Resource Manager

Mailing Address: 2726 Holly Road City/State/ZIP Code: Corpus Christi, TX, 78415

Phone No.: (361)826-2489 Fax No.: (361)826-1889 E-mail: estebanr2@cctexas.com

DMR data must be submitted through the NetDMR[2] system. An electronic reporting account can be established once the facility has obtained the permit number.

7. NOTICE INFORMATION (Instructions, Pages 23-24)

a. Individual Publishing the Notices

Mr. ☐ Ms. ☒ First/Last Name: Rebecca Huerta Credential: Click to enter text.

Organization Name: City of Corpus Christi Title: City Secretary

Mailing Address: P.O. Box 9277 City/State/ZIP Code: Corpus Christi, TX 78469

Phone No.: (361)826-3105 Fax No.: (361)826-3113 E-mail: citysecretary@cctexas.com

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package (only for NORI, NAPD will be sent via regular mail)

☐ E-mail: Click to enter text.

☐ Fax: Click to enter text.

☒ Regular Mail (USPS)

Mailing Address: P.O. Box 9277 City/State/ZIP Code: Corpus Christi, TX 78469

c. Contact in the Notice

Mr. ☒ Ms. ☐ First/Last Name: Esteban "Steve" Ramos Credential: Click to enter text.

Organization Name: City of Corpus Christi Title: Water Resource Manager

Phone No.: (361)826-2489 Fax No.: (361)826-1889 E-mail: estebanr2@cctexas.com

d. Public Place Information

If the facility or outfall is located in more than one county, provide a public viewing place for each county.

Public building name: La Retama Central Library Location within the building: Reference Shelf

Physical Address of Building: 805 Comanche

City: Corpus Christi County: Nueces

e. Bilingual Notice Requirements:

This information **is required** for **new, major amendment, and renewal applications**. It is not required for minor amendment or minor modification applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

1. Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?

   ☒ Yes ☐ No

[2] https://www.tceq.texas.gov/permitting/netdmr

If **no**, publication of an alternative language notice is not required; **skip to** Item 8 (REGULATED ENTITY AND PERMITTED SITE INFORMATION.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

   ☒ Yes ☐ No

3. Do the students at these schools attend a bilingual education program at another location?

   ☐ Yes ☒ No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?

   ☐ Yes ☒ No

5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? Spanish

8. REGULATED ENTITY AND PERMITTED SITE INFORMATION (Instructions Pages 24-25)

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry[3] to determine the RN or to see if the larger site may already be registered as a regulated site:

If the site is found, provide the assigned RN and the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

a. TCEQ issued Regulated Entity Number (RN): **RN** Click to enter text

b. Name of project or site (the name known by the community where located): Inner Harbor Desalination Plant

c. Is the location address of the facility in the existing permit the same?

   ☐ Yes ☒ No

d. If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

e. Owner of treatment facility: City of Corpus Christi

   Ownership of Facility: ☒ Public ☐ Private ☐ Both ☐ Federal

f. Owner of land where treatment facility is or will be:

   Mr. ☐ Ms. ☐ First/Last or Organization Name: Flint Hills Resources

   Mailing Address: 8125 Up River Road City/State/ZIP Code: Corpus Christi, TX 78409

   Phone No.: (361) 242-5336 Fax No.: Click to enter text E-mail: Roger.TenNapel@fhr.com

   If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. In some cases, a lease may not suffice - see instructions. **Attachment:** B

g. Owner of effluent TLAP disposal site (if applicable):

   Mr. ☐ Ms. ☐ First/Last or Organization Name: N/A

[3] http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch

Mailing Address: Click to enter text. City/State/ZIP Code: Click to enter text.

Phone No.: Click to enter text. Fax No.: Click to enter text. E-mail: Click to enter text.

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. **Attachment**: Click to enter text.

h. Owner of sewage sludge disposal site (if applicable):

Mr. ☐ Ms. ☐ First/Last or Organization Name: City of Corpus Christi

Mailing Address: 2525 Hygeia Street City/State/ZIP Code: Corpus Christi, TX 78415

Phone No.: 361-826-2489 Fax No.: 361-826-1971 E-mail: Click to enter text.

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. **Attachment**: Click to enter text.

(This information is required only if authorization is sought in the permit for sludge disposal on property owned or controlled by the applicant.)

9. TDPES DISCHARGE/TLAP DISPOSAL INFORMATION (Instructions, Pages 25-28)

a. Is the facility located on or does the treated effluent cross American Indian Land?

☐ Yes ☒ No

b. Attach an **original** full size USGS Topographic Map (or an 8.5"×11" **reproduced** portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.

- ☒ One-mile radius and three-miles downstream information
- ☒ Applicant's property boundaries
- ☒ Treatment facility boundaries
- ☒ Labeled point(s) of discharge and highlighted discharge route(s)
- ☐ Effluent disposal site boundaries
- ☐ All wastewater ponds
- ☒ Sewage sludge disposal site
- ☐ New and future construction
- ☒ Attachment: C

c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No ☒ N/A

If **no**, or a **new** application, please give an accurate description: Cefe Valenzuela Landfill, 2397 County Road 20, Robstown, TX, 78380

d. Are the point(s) of discharge and the discharge route(s) in the existing permit correct?

☐ Yes ☐ No ☒ N/A

If **no**, or a **new or amendment** applications, provide an accurate description: To Corpus Christi Inner Harbor, Segment No. 2484

e. City nearest the outfall(s): Corpus Christi

f. County in which the outfalls(s) is/are located: Nueces County

g. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If **yes**, indicate by a check mark if: ☐ Authorization granted ☐ Authorization pending

For **new and amendment** applications, provide copies of letters that show proof of contact and the approval letter upon receipt.

Attachment: Click to enter text.

h. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge. No counties are located downstream of the point of discharge.

i. For **TLAPs**, is the location of the effluent disposal site in the existing permit accurate?

☐ Yes ☐ No ☒ N/A

If **no**, or if this a **new or amendment** application, provide an accurate description: Click to enter text.

j. City nearest the disposal site: Click to enter text.

k. County in which the disposal site is located: Click to enter text.

l. Disposal Site Latitude: Click to enter text. Longitude: Click to enter text.

m. For **TLAPs**, describe how effluent is/will be routed from the treatment facility to the disposal site: N/A

n. For **TLAPs**, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: N/A

10. MISCELLANEOUS INFORMATION (Instructions, Page 28)

a. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☒ Yes ☐ No

If **yes**, list each person: The City's Administrative Contact, Esteban "Steve" Ramos, is currently employed by the City of Corpus Christi as the Water Resource Manager. Mr. Ramos previously worked for the TCEQ before joining the public-sector at the City of Corpus Christi. He reviewed the application as prepared by Freese and Nichols, Inc. on behalf of the City.

b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following:

- Acct. No.: Click to enter text.
- Amt. due: Click to enter text.

c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following:

- Enforcement Order No.: Click to enter text.
- Amt. due: Click to enter text.

11. SIGNATURE PAGE (Instructions, Page 29)

Permit No: WQ000

Applicant Name: City of Corpus Christi

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory name (typed or printed): Peter Zanoni

Signatory title: City Manager

Signature: _____ Date: January 17, 2020
(Use blue ink)

Subscribed and Sworn to before me by the said Peter Zanoni

on this 17th day of January, 2020.

My commission expires on the 7th day of September, 2021.

Miles K Risley
Notary Public

MILES K. RISLEY
Notary Public, State of Texas
Comm. Expires 09-07-2021
Notary ID 3603452

[SEAL]

Nueces
County, Texas

If co-applicants are necessary, each entity must submit an original, separate signature page.

INDUSTRIAL ADMINISTRATIVE REPORT 1.1

The following information is required for **new** and **amendment** applications.

1. AFFECTED LANDOWNER INFORMATION (Instructions, Pages 30-32)

a. Attach a landowners map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.

- ☒ The applicant's property boundaries.
- ☒ The facility site boundaries within the applicant's property boundaries.
- ☐ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone.
- ☒ The property boundaries of all landowners surrounding the applicant's property. (**Note:** if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
- ☐ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream.
- ☐ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge.
- ☒ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides.
- ☐ The boundaries of the effluent disposal site (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.
- ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of the applicant's property boundaries where the sewage sludge land application site is located.
- ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (e.g., sludge surface disposal site or sludge monofill) is located.

Attachment: D

b. Check the box next to the format of the landowners list:

☐ Readable/Writeable CD ☒ Four sets of labels

c. ☒ Check this box to confirm a separate list with the landowners' names and mailing addresses cross-referenced to the landowners map has been attached.

Attachment: D

d. Provide the source of the landowners' names and mailing addresses: Nueces County Appraisal District

e. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):
Click to enter text.

2. ORIGINAL PHOTOGRAPHS (Instructions, Page 32)

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.

☒ At least one original photograph of the new or expanded treatment unit location.

☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.

☐ At least one photograph of the existing/proposed effluent disposal site.

☒ A plot plan or map showing the location and direction of each photograph.

Attachment: D

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: ____Renewal _____Major Amendment _____Minor Amendment _____New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

_____ Texas Historical Commission _____ U.S. Fish and Wildlife

_____ Texas Parks and Wildlife Department _____ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 33)

The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

Do not refer to a response of any item in the permit application form. Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee Name: City of Corpus Christi

2. Permit No.: WQ000 Click to enter text EPA ID No.: TXo Click to enter text

3. Address of the project (location description that includes street/highway, city/vicinity, and county): At the intersection of Nueces Bay Boulevard and West Broadway Street, Corpus Christi, Nueces County, Texas.

4. Provide the name, address, phone and fax number, and email address of an individual that can be contacted to answer specific questions about the property.

   First/Last Name: Esteban "Steve" Ramos Title: Water Resource Manager

   Credential: Click to enter text

   Organization Name: City of Corpus Christi

   Mailing Address: 2726 Holly Road City/State/ZIP Code: Corpus Christi, TX, 78415

   Phone No.: 361-826-2489 Fax No.: 361-826-1889 E-mail: estebanr2@cctexas.com

5. List the county in which the facility is located: Nueces County

6. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property: N/A

7. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in *30 TAC Chapter 307*). If known, please identify the classified segment number: To Corpus Christi Inner Harbor, Segment No. 2484

8. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report.)

   Attachment: E

9. Provide original photographs of any structures 50 years or older on the property.

   Attachment: N/A

10. Does your project involve any of the following? Check all that apply.

    ☒ Proposed access roads, utility lines, construction easements

    ☐ Visual effects that could damage or detract from a historic property's integrity

    ☐ Vibration effects during construction or as a result of project design

    ☒ Additional phases of development that are planned for the future

    ☐ Sealing caves, fractures, sinkholes, other karst features

    ☒ Disturbance of vegetation or wetlands

11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features): Currently approximately 12 acres will be disturbed at the plant site. One intake structure and one discharge diffuser will be constructed in the canal (Corpus Christi Inner Harbor, Segment No. 2484).

12. Describe existing disturbances, vegetation, and land use: Currently, one parcel is residential land use with one house present. The remaining parcels are undeveloped with trees and shrubs.

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

13. List construction dates of all buildings and structures on the property: Quarter 4, 2021

14. Provide a brief history of the property, and name of the architect/builder, if known: The property was originally a residential neighborhood. During the 1990s and 2000s, the property was redeveloped with only one residence remaining.

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if mailing the payment.

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- Do not mail this form with the application form.
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Fee Code: WQP **Permit No: WQ000**

1. Check or Money Order Number: 477802
2. Check or Money Order Amount: $ 350.00
3. Date of Check or Money Order: 01/16/2020
4. Name on Check or Money Order: City of Corpus Christi
5. APPLICATION INFORMATION

   Name of Project or Site: Inner

   Physical Address of Project or Site: Inner Harbor

   If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

Staple Check or Money Order in This Space

TECHNICAL REPORT 1.0
INDUSTRIAL

The following information **is required** for all applications for a TLAP or an individual TPDES discharge permit.

For additional information or clarification on the requested information, refer to the Instructions for Completing the Industrial Wastewater Permit Application[1] available on the TCEQ website.

If more than one outfall is included in the application, provide applicable information for each individual outfall. **If an item does not apply to the facility, enter N/A** to indicate that the item has been considered. Include separate reports or additional sheets as **clearly cross-referenced attachments** and provide the attachment number in the space provided for the item the attachment addresses.

NOTE: This application is for an industrial wastewater permit only. Additional authorizations from the TCEQ Waste Permits Division or the TCEQ Air Permits Division may be needed.

1. FACILITY/SITE INFORMATION (Instructions, Pages 34-35)

a. Describe the general nature of the business and type(s) of industrial and commercial activities. Include all applicable SIC codes (up to 4).

The Inner Harbor Desalination Plant will provide an additional water source and produce potable water for distribution through the City of Corpus Christi's existing distribution system. The Inner Harbor Plant is expected to be developed for production in phases starting with 10 MGD, expandable to 20 MGD, and an ultimate capacity of 30 MGD. The ultimate maximum discharge capacity will be 62 MGD.

b. Describe all wastewater-generating processes at the facility.

The treatment process will take raw seawater and produce potable water. At the ultimate maximum production capacity of 30 MGD, the plant will produce a maximum daily discharge of 62 MGD. Four treatment processes will generate waste streams. The reverse osmosis process contributes 85% of the waste flow, dissolved air flotation contributes 1.5% of the waste flow, strainer backwash water will account for 4.5% of the waste flow, and microfiltration backwash water will contribute 9% of the waste flow.

[1] https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html

c. Provide a list of raw materials, major intermediates, and final products handled at the facility.

Materials List

Raw Materials	Intermediate Products	Final Products
Seawater	None	Drinking Water

Attachment: Click to enter text

d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, waste-disposal areas, and water intake structures.
- The location of each unit of the WWTP including the location of wastewater collection sumps, impoundments, outfalls, and sampling points, if significantly different from outfall locations.

Attachment: F

e. Is this a new permit application for an existing facility?

☐ Yes ☒ No

If **yes**, provide background discussion: Click to enter text

f. Is/will the treatment facility/disposal site be located above the 100-year frequency flood level.

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain: FEMA Flood Map- 4854640166C

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are used/proposed to prevent flooding (including tail water and rainfall run-on controls) of the treatment facility and disposal area: Click to enter text

Attachment: F

g. For **new** or **major amendment** permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☒ Yes ☐ No ☐ N/A (renewal only)

h. If **yes** to Item 1.g, has the applicant applied for a USACE CWA Chapter 404 Dredge and Fill permit?

☐ Yes ☒ No

If **yes**, provide the permit number: Click to enter text

If **no**, provide an approximate date of application submittal to the USACE: January 2021

2. TREATMENT SYSTEM (Instructions, Page 35)

a. List any physical, chemical, or biological treatment process(es) used/proposed to treat wastewater at this facility. Include a description of each treatment process, starting with initial treatment and finishing with the outfall/point of disposal.

Produced wastewater will not be treated prior to discharge. The waste streams will be generated by pretreatment, membrane filtration, and desalination processes. The waste streams from these processes will be blended for discharge through Outfall 001.

b. Attach a flow schematic **with a water balance** showing all sources of water and wastewater flow into the facility, wastewater flow into and from each treatment unit, and wastewater flow to each outfall/point of disposal.

Attachment: G

3. IMPOUNDMENTS (Instructions, Pages 35-37)

Does the facility use or plan to use any wastewater impoundments (e.g., lagoons or ponds?)

☐ Yes ☒ No

If **no**, proceed to Item 4. If **yes**, complete **Item 3.a** for **existing** impoundments and **Items 3.a - 3.e** for **new or proposed** impoundments. **NOTE:** See instructions, Pages 35-37, for additional information on the attachments required by Items 3.a – 3.e.

a. Complete the table with the following information for each existing, new, or proposed impoundment:

Use Designation: Indicate the use designation for each impoundment as Treatment (**T**), Disposal (**D**), Containment (**C**), or Evaporation (**E**).

Associated Outfall Number: Provide an outfall number if a discharge occurs or will occur.

Liner Type: Indicate the liner type as Compacted clay liner (**C**), In-situ clay liner (**I**), Synthetic/plastic/rubber liner (**S**), or Alternate liner (**A**). **NOTE:** See instructions for further detail on liner specifications. If an alternate liner (A) is selected, include an attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

Leak Detection System: If any leak detection systems are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no.

Groundwater Monitoring Wells and Data: If groundwater monitoring wells are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no. Attach any existing groundwater monitoring data.

Dimensions: Provide the dimensions, freeboard, surface area, storage capacity of the impoundments, and the maximum depth (not including freeboard). For impoundments with irregular shapes, submit surface area instead of length and width.

Compliance with 40 CFR Part 257, Subpart D: If the impoundment is required to be in compliance with 40 CFR Part 257, Subpart D, enter **Y** for yes. Otherwise, enter **N** for no.

Date of Construction: Enter the date construction of the impoundment commenced (mm/dd/yy).

Impoundment Information

Parameter	Pond #	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)				
Associated Outfall Number				
Liner Type (C) (I) (S) or (A)				
Alt. Liner Attachment Reference				
Leak Detection System, Y/N				
Groundwater Monitoring Wells, Y/N				
Groundwater Monitoring Data Attachment				
Pond Bottom Located Above The Seasonal High-Water Table, Y/N				
Length (ft)				
Width (ft)				
Max Depth From Water Surface (ft), Not Including Freeboard				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
40 CFR Part 257, Subpart D, Y/N				
Date of Construction				

Impoundment Information

Parameter	Pond #	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)				
Associated Outfall Number				
Liner Type (C) (I) (S) or (A)				
Alt. Liner Attachment Reference				
Leak Detection System, Y/N				
Groundwater Monitoring Wells, Y/N				
Groundwater Monitoring Data Attachment				
Pond Bottom Located Above The Seasonal High-Water Table, Y/N				
Length (ft)				
Width (ft)				
Max Depth From Water Surface (ft), not including freeboard				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
40 CFR Part 257, Subpart D, Y/N				
Date of Construction				

Attachment: Click to enter text

The following information (**Items 3.b – 3.e**) is required only for **new or proposed** impoundments.

b. For new or proposed impoundments, attach any available information on the following items. If attached, check **yes** in the appropriate box. Otherwise, check **no** or **not yet designed**.

i. Liner data

☐ Yes ☐ No ☐ Not yet designed

ii. Leak detection system or groundwater monitoring data

☐ Yes ☐ No ☐ Not yet designed

iii. Groundwater impacts

☐ Yes ☐ No ☐ Not yet designed

NOTE: Item b.iii is required if the bottom of the pond is not above the seasonal high-water table in the shallowest water-bearing zone.

Attachment: Click to enter text

For TLAP applications: Items 3.c – 3.e are **not required**, continue to Item 4.

c. Attach a USGS map or a color copy of original quality and scale which accurately locates and identifies all known water supply wells and monitor wells within ½-mile of the impoundments.

Attachment: Click to enter text

d. Attach copies of State Water Well Reports (e.g., driller's logs, completion data, etc.), and data on depths to groundwater for all known water supply wells including a description of how the depths to groundwater were obtained.

Attachment: Click to enter text

e. Attach information pertaining to the groundwater, soils, geology, pond liner, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment: Click to enter text

4. OUTFALL/DISPOSAL METHOD INFORMATION (Instructions, Pages 38-39)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge operations and for each point of disposal for TLAP operations.

If there are more outfalls/points of disposal at the facility than the spaces provided, copies of pages 6 and/or numbered accordingly (i.e., page 6a, 6b, etc.) may be used to provide information on the additional outfalls.

For TLAP applications: Indicate the disposal method and each individual irrigation area **I**, evaporation pond **E**, or subsurface drainage system **S** by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for **Outfall** number (e.g. **E1** for evaporation pond 1, **I2** for irrigation area No. 2, etc.).

Outfall Latitude and Longitude

Outfall Number	Latitude-decimal degrees	Longitude-decimal degrees
001	Between 27.814 and 27.8145	Between -97.4195 and -97.418

Outfall Location Description

Outfall Number	Location Description
001	Diffuser(s) 200 to 500 feet from channel edge

Description of Sampling Points (if different from Outfall location)

Outfall Number	Description of Sampling Point
001	At start-of-pipe to diffuser(s)

Outfall Flow Information – Permitted and Proposed

Outfall Number	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)	Anticipated Discharge Date (mm/dd/yy)
001 – Initial	N/A	N/A	17	21	2021
001 - Expand	N/A	N/A	34	41	unknown
001 - Ultimate	N/A	N/A	51	62	unknown

Outfall Discharge – Method and Measurement

Outfall Number	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	Y	N	TBD

Outfall Discharge – Flow Characteristics

Outfall Number	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)
001	N	Y	N	24	30	12

Wastestream Contributions

Outfall No.: 001

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Reverse Osmosis Brine Discharge	45.00	85
Clarifier – Dissolved Air Flotation Treatment	0.83	1.5
Strainer Backwash	2.47	4.5
Microfiltration Media Filter Backwash	4.79	9

Outfall No.: Click to enter text

Contributing Wastestreams	Volume (MGD)	% of Total Flow

Outfall No.: Click to enter text

Contributing Wastestreams	Volume (MGD)	% of Total Flow

Attachment: Click to enter text

5. BLOWDOWN AND ONCE-THROUGH COOLING WATER DISCHARGES (Instructions, Page 39)

a. Does the facility use/propose to use any cooling towers which discharge blowdown or other wastestreams to the outfall(s)?

☐ Yes ☒ No

NOTE: If the facility uses or plans to use cooling towers, Item 12 **is required**.

b. Does the facility use or plan to use any boilers that discharge blowdown or other wastestreams to the outfall(s)?

☐ Yes ☒ No

c. Does or will the facility discharge once-through cooling water to the outfall(s)?

☐ Yes ☒ No

NOTE: If the facility uses or plans to use once-through cooling water, Item 12 **is required**.

d. If **yes** to Items 5.a, 5.b, **or** 5.c, attach the SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product or active ingredient, as appropriate, in wastestream.

Attach a summary of this information in addition to the submittal of the SDS for each specific wastestream and the associated chemical additives and specify which outfalls are affected.

Attachment: Click to enter text.

e. Cooling Towers and Boilers

If **yes** to either Item 5.a **or** 5.b, complete the following table.

Cooling Towers and Boilers

Type of Unit	Number of Units	Dly Avg Blowdown (gallons/day)	Dly Max Blowdown (gallons/day)
Cooling Towers			
Boilers			

6. STORMWATER MANAGEMENT (Instructions, Pages 39-40)

Are there any existing/proposed outfalls which discharge stormwater associated with industrial activities, as defined at *40 CFR § 122.26(b)(14)*, commingled with any other wastestream?

☐ Yes ☒ No

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in some manner which may result in exposure of the activities or materials to stormwater: Click to enter text.

7. DOMESTIC SEWAGE, SEWAGE SLUDGE, AND SEPTAGE MANAGEMENT AND DISPOSAL (Instructions, Page 40)

a. Check the box next to the appropriate method of domestic sewage and domestic sewage sludge treatment or disposal. Complete Worksheet 5.0 or Item 7.b if directed to do so.

☒ Domestic sewage is routed (i.e., connected to or transported to) to a WWTP permitted to receive domestic sewage for treatment, disposal, or both. **Complete Item 7.b**.

☐ Domestic sewage is disposed of by an on-site septic tank and drainfield system. **Complete Item 7.b**.

☐ Domestic and industrial treatment sludge **ARE commingled** prior to use or disposal.

☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge **IS NOT commingled** prior to sludge use or disposal. **Complete Worksheet 5.0**.

☐ Facility is a POTW. **Complete Worksheet 5.0**.

☐ Domestic sewage is not generated on-site.

☐ Other (e.g., portable toilets), specify and **Complete Item 7.b**: Click to enter text

b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
Broadway WWTP – City of Corpus Christi	WQ0010401-005

8. IMPROVEMENTS OR COMPLIANCE/ENFORCEMENT REQUIREMENTS (Instructions, Page 40)

a. Is the permittee currently required to meet any implementation schedule for compliance or enforcement?

☐ Yes ☒ No

b. Has the permittee completed or planned for any improvements or construction projects?

☐ Yes ☒ No

c. If **yes** to either 8.a **or** 8.b, provide a brief summary of the requirements and a status update: Click to enter text

9. TOXICITY TESTING (Instructions, Page 41)

Have any biological tests for acute or chronic toxicity been made on any of the discharges or on a receiving water in relation to the discharge within the last three years?

☐ Yes ☒ No

If **yes**, identify the tests and describe their purposes: Click to enter text

Additionally, attach a copy of all tests performed which **have not** been submitted to the TCEQ or EPA.

Attachment: Click to enter text

10. OFF-SITE/THIRD PARTY WASTES (Instructions, Page 41)

a. Does or will the facility receive wastes from off-site sources for treatment at the facility, disposal on-site via land application, or discharge via a permitted outfall?

☐ Yes ☒ No

If **no**, proceed to Item 11. If **yes**, provide responses to Items 10.b through 10.d below.

b. Attach the following information to the application:

- List of wastes received (including volumes, characterization, and capability with on-site wastes).
- Identify the sources of wastes received (including the legal name and addresses of the generators).
- Description of the relationship of waste source(s) with the facility's activities.

Attachment: Click to enter text.

c. Is or will wastewater from another TCEQ, NPDES, or TPDES permitted facility commingled with this facility's wastewater after final treatment and prior to discharge via the final outfall/point of disposal?

☐ Yes ☐ No

If **yes**, provide the name, address, and TCEQ, NPDES, or TPDES permit number of the contributing facility and a copy of any agreements or contracts relating to this activity.

Attachment: Click to enter text.

d. Is this facility a POTW that accepts/will accept process wastewater from any SIU and has/is required to have an approved pretreatment program under the NPDES/TPDES program?

☐ Yes ☐ No

If **yes**, **Worksheet 6.0** of this application **is required**.

11. RADIOACTIVE MATERIALS (Instructions, Pages 41-42)

a. Are/will radioactive materials be mined, used, stored, or processed at this facility?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L.

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material	Concentration (pCi/L)

b. Does the applicant or anyone at the facility have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L. Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material	Concentration (pCi/L)

12. COOLING WATER (Instructions, Pages 42-43)

a. Does the facility use or propose to use water for cooling purposes?

☐ Yes ☒ No

If **no**, stop here. If **yes**, complete Items 12.b thru 12.f.

b. Cooling water is/will be obtained from a groundwater source (e.g., on-site well).

☐ Yes ☐ No

If **yes**, stop here. If **no**, continue.

c. Cooling Water Supplier

i. Provide the name of the owner(s) and operator(s) for the CWIS that supplies or will supply water for cooling purposes to the facility.

Cooling Water Intake Structure(s) Owner(s) and Operator(s)

CWIS ID				
Owner				
Operator				

ii. Cooling water is/will be obtained from a Public Water Supplier (PWS)

☐ Yes ☐ No

If **no**, continue. If **yes**, provide the PWS Registration No. and stop here: Click to enter text

iii. Cooling water is/will be obtained from an Independent Supplier

☐ Yes ☐ No

If **no**, proceed to Item 12.d. If **yes,** contact the Industrial Permits Team to determine what application materials are required. Attach copies of the correspondence with the TCEQ and any required application materials, as stipulated in the correspondence with the TCEQ.

Attachment: Click to enter text

d. 316(b) General Criteria

i. The CWIS(s) have or will have a cumulative design intake flow of 2 MGD or greater

☐ Yes ☐ No

ii. At least 25% of the total water withdrawn by the CWIS is/will be used exclusively for cooling purposes on an annual average basis

☐ Yes ☐ No

iii. The facility withdraws/proposes to withdraw water for cooling purposes from surface waters that meet the definition of Waters of the United States in *40 CFR § 122.2*.

☐ Yes ☐ No

If **no**, provide an explanation of how the waterbody does not meet the definition of Waters of the United States in *40 CFR § 122.2*: Click to enter text

If **yes** to all three questions in Item 12.d, the facility is subject to 316(b). Proceed to Item 12.f.

If **no** to any of the questions in Item 12.d, the facility does not meet the minimum criteria to be subject to the full requirements of 316(b). Proceed to Item 12.e.

e. The facility is **not subject** to 316(b) **and uses/proposes to use cooling towers**.

☐ Yes ☐ No

If **yes**, stop here. If **no**, complete Worksheet 11.0, Items 1(a), 1(b)(i-iii) and (vi), 2(b)(i), and 3(a) to allow for a determination based upon BPJ.

f. Phase I vs Phase II Facilities

i. Existing facility (Phase II)

☐ Yes ☐ No

If **yes**, complete Worksheets 11.0 through 11.3, as applicable. Otherwise, continue.

ii. New Facility – (Phase I)

☐ Yes ☐ No

If **yes**, check the box next to the facility's compliance track selection, attach the requested information, and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2:

☐ Track I - AIF greater than 2 MGD, but less than 10 MGD
- Attach information required by *40 CFR §§ 125.86(b)(2)-(4)*.

☐ Track I - AIF greater than 10 MGD
- Attach information required by *40 CFR § 125.86(b)*.

☐ Track II
- Attach information required by *40 CFR § 125.86(c)*.

Attachment: Click to enter text

NOTE: Item 13 is required only for existing permitted facilities.

13. PERMIT CHANGE REQUESTS (Instructions, Pages 43-44)

a. Is the facility requesting a **major amendment** of an existing permit?

☐ Yes ☒ No

If **yes**, list each request individually and provide the following information: 1) detailed information regarding the scope of each request and 2) a justification for each request. Attach any supplemental information or additional data to support each request.

Click to enter text.

b. Is the facility requesting any **minor amendments** to the permit?

☐ Yes ☒ No

If **yes**, list and discuss the requested changes.

Click to enter text.

c. Is the facility requesting any **minor modifications** to the permit?

☐ Yes ☒ No

If **yes**, list and discuss the requested changes.

Click to enter text.

WORKSHEET 4.0
RECEIVING WATERS

This worksheet **is required** for all TPDES permit applications.

1. DOMESTIC DRINKING WATER SUPPLY (Instructions, Page 74)

a. There is a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge.

☐ Yes ☒ No

If **no**, stop here and proceed to Item 2. If **yes**, provide the following information:

i. The legal name of the owner of the drinking water supply intake: Click to enter text.

v. The distance and direction from the outfall to the drinking water supply intake: Click to enter text.

b. Locate and identify the intake on the USGS 7.5-minute topographic map provided for Administrative Report 1.0.

☐ Check this box to confirm the above requested information is provided.

2. DISCHARGE INTO TIDALLY INFLUENCED WATERS (Instructions, Page 74)

If the discharge is to tidally influenced waters, complete this section. Otherwise, proceed to Item 3.

a. Width of the receiving water at the outfall: Approximately 1,000 feet

b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☒ No

If **yes**, provide the distance and direction from the outfall(s) to the oyster reefs: Click to enter text.

c. Are there sea grasses within the vicinity of the point of discharge?

☐ Yes ☒ No

If **yes**, provide the distance and direction from the outfall(s) to the grasses: Click to enter text.

3. CLASSIFIED SEGMENT (Instructions, Page 74)

The discharge is/will be directly into (or within 300 feet of) a classified segment.

☒ Yes ☐ No

If **yes**, stop here. It is not necessary to complete Items 4 and 5 of this worksheet or Worksheet 4.1.

If **no**, complete Items 4 and 5 and Worksheet 4.1 may be required.

4. DESCRIPTION OF IMMEDIATE RECEIVING WATERS (Instructions, Page 75)

a. Name of the immediate receiving waters: Click to enter text.

b. Check the appropriate description of the immediate receiving waters:

- ☐ Lake or Pond
  - Surface area (acres): Click to enter text.
  - Average depth of the entire water body (feet): Click to enter text.
  - Average depth of water body within a 500-foot radius of the discharge point (feet): Click to enter text.
- ☐ Man-Made Channel or Ditch
- ☐ Stream or Creek
- ☐ Freshwater Swamp or Marsh
- ☐ Tidal Stream, Bayou, or Marsh
- ☐ Open Bay
- ☐ Other, specify: Click to enter text.

If **Man-Made Channel or Ditch** or **Stream or Creek** were selected above, provide responses to Items 4.c – 4.g below:

c. For **existing discharges**, check the description below that best characterizes the area **upstream** of the discharge.

For **new discharges**, check the description below that best characterizes the area **downstream** of the discharge.

- ☐ Intermittent (dry for at least one week during most years)
- ☐ Intermittent with Perennial Pools (enduring pools containing habitat to maintain aquatic life uses)
- ☐ Perennial (normally flowing)

Check the source(s) of the information used to characterize the area upstream (existing discharge) or downstream (new discharge):

- ☐ USGS flow records
- ☐ personal observation
- ☐ historical observation by adjacent landowner(s)
- ☐ other, specify: Click to enter text.

d. List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point: Click to enter text.

e. The receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.).

☐ Yes ☐ No

If **yes**, describe how: Click to enter text.

f. General observations of the water body during normal dry weather conditions: Click to enter text.

Date and time of observation: Click to enter text.

g. The water body was influenced by stormwater runoff during observations.

☐ Yes ☐ No

If **yes**, describe how: Click to enter text.

5. GENERAL CHARACTERISTICS OF WATER BODY (Instructions, Page 75)

a. Is the receiving water upstream of the existing discharge or proposed discharge site influenced by any of the following (check all that apply):

- ☐ oil field activities
- ☐ agricultural runoff
- ☐ upstream discharges
- ☐ urban runoff
- ☐ septic tanks
- ☐ other, specify: Click to enter text.

b. Uses of water body observed or evidence of such uses (check all that apply):

- ☐ livestock watering
- ☐ non-contact recreation
- ☐ domestic water supply
- ☐ contact recreation
- ☐ fishing
- ☐ industrial water supply
- ☐ irrigation withdrawal
- ☐ navigation
- ☐ picnic/park activities
- ☐ other, specify: Click to enter text.

c. Description which best describes the aesthetics of the receiving water and the surrounding area (check only one):

- ☐ **Wilderness:** outstanding natural beauty; usually wooded or un-pastured area: water clarity exceptional
- ☐ **Natural Area:** trees or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored
- ☐ **Common Setting:** not offensive, developed but uncluttered; water may be colored or turbid
- ☐ **Offensive:** stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

WORKSHEET 6.0
INDUSTRIAL WASTE CONTRIBUTION

This worksheet **is required** for all applications for publicly-owned treatment works (POTWs).

For an explanation of the terms used in this worksheet, refer to the General Definitions on pages 4-12 and the Definitions Relating to Pretreatment on pages 13-14 of the Instructions.

1. ALL POTWS (Instructions, Page 80)

a. Complete the following table with the number of each type of industrial users (IUs) that discharge to the POTW and the daily average flows from each.

Industrial User Information

Type of Industrial User	Number of Industrial Users	Daily Average Flow (gallons per day)
CIU	0	
SIU - Non-categorical	0	
Other IU	0	

b. In the past three years, has the POTW experienced treatment plant interference?

☐ Yes ☒ No

If **yes**, identify the date(s), duration, nature of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IU(s) that may have caused the interference: Click to enter text.

c. In the past three years, has the POTW experienced pass-through?

☐ Yes ☒ No

If **yes**, identify the date(s), duration, pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass-through event. Include the names of the IU(s) that may have caused the pass-through: Click to enter text.

d. Does the POTW have, or is it required to develop, an approved pretreatment program?

☐ Yes ☒ No

If **yes**, answer all questions in Item 2 and skip Item 3.

If **no**, skip Item 2 and answer all questions in Item 3 for each significant industrial user and categorical industrial user.

2. POTWS WITH APPROVED PRETREATMENT PROGRAMS OR THOSE REQUIRED TO DEVELOP A PRETREATMENT PROGRAM (Instructions, Pages 80-81)

a. Have there been any substantial modifications to the POTW's approved pretreatment program that have not been submitted to the Approval Authority (TCEQ) for approval according to *40 CFR § 403.18*?

☐ Yes ☐ No

If **yes**, include an attachment which identifies all substantial modifications that have not been submitted to the TCEQ and the purpose of the modifications.

Attachment: Click to enter text.

b. Have there been any non-substantial modifications to the POTW's approved pretreatment program that have not been submitted to the Approval Authority (TCEQ)?

☐ Yes ☐ No

If **yes**, include an attachment which identifies all non-substantial modifications that have not been submitted to the TCEQ and the purpose of the modification.

Attachment: Click to enter text.

c. List all parameters measured above the MAL in the POTW's effluent monitoring during the last three years:

Effluent Parameters Measured Above the MAL

Pollutant	Concentration	MAL	Units	Date

Attachment: Click to enter text.

d. Has any SIU, CIU, or other IU caused or contributed to any other problems (excluding interference or pass-through) at the POTW in the past three years?

☐ Yes ☐ No

If **yes**, provide a description of each episode, including date(s), duration, description of problems, and probable pollutants. Include the name(s) of the SIU(s)/CIU(s)/other IU(s) that may have caused or contributed to any of the problems: Click to enter text.

3. SIGNIFICANT INDUSTRIAL USER AND CATEGORICAL INDUSTRIAL USER INFORMATION (Instructions, Pages 81-82)

POTWs that **do not** have an approved pretreatment program **are required** to provide the following information for each SIU and CIU:

a. Mr. or Ms.: Zero SIU and CIUs First/Last Name: Click to enter text.

Organization Name: Click to enter text. SIC Code: Click to enter text.

Phone number: Click to enter text. Email address: Click to enter text.

Physical Address: Click to enter text. City/State/ZIP Code: Click to enter text.

Attachment: Click to enter text.

b. Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (e.g., process and non-process wastewater): Click to enter text.

Attachment: Click to enter text.

c. Provide a description of the principal products(s) or service(s) performed: Click to enter text.

d. Flow rate information

Flow rate information

Effluent Type	Discharge (gallons per day)	Discharge Frequency (continuous, batch, or intermittent)
Process wastewater		
Non-process wastewater		

e. Pretreatment Standards

i. Is the SIU or CIU subject to technology-based local limits as defined in the application instructions?

☐ Yes ☐ No

ii. Is the SIU subject to categorical pretreatment standards?

☐ Yes ☐ No

If **yes**, provide the category and subcategory or subcategories in the SIUs Subject To Categorical Pretreatment Standards table.

SIUs Subject To Categorical Pretreatment Standards

Category in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR

f. Has the SIU or CIU caused or contributed to any problem(s) (e.g., interferences, pass through, odors, corrosion, blockages) at the POTW in the past three years?

☐ Yes ☐ No

If **yes**, provide a description of each episode, including dates, duration, description of problems, and probable pollutants, and include the name(s) of the SIU(s)/CIU(s) that may have caused or contributed to the problem(s): Click to enter text.

WORKSHEET 7.0
STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

This worksheet **is required** for all TPDES permit applications requesting individual permit coverage for discharges consisting of **either**: 1) solely of stormwater discharges associated with industrial activities, as defined in *40 CFR § 122.26(b)(14)(i-xi)*, **or** 2) stormwater discharges associated with industrial activities and any of the listed allowable non-stormwater discharges, as defined in the MSGP (TXR05000), Part II, Section A, Item 6.

Discharges of stormwater as defined in *40 CFR § 122.26 (b)(13)* are not required to obtain authorization under a TPDES permit (see exceptions at *40 CFR §§ 122.26(a)(1)* and *(9)*). Authorization for discharge may be required from a local municipal separate storm sewer system.

1. APPLICABILITY (Instructions, Page 83)

Do discharges from any of the existing/proposed outfalls consist either 1) solely of stormwater discharges associated with industrial activities **or** 2) stormwater discharges associated with industrial activities and any of the allowable non-stormwater discharges?

☒ Yes ☐ No

If **no**, stop here. If **yes**, proceed as directed.

2. STORMWATER OUTFALL COVERAGE (Instructions, Page 84)

List each existing/proposed stormwater outfall at the facility and indicate which type of authorization covers or is proposed to cover discharges.

Authorization coverage

Outfall	Authorized Under MSGP	Authorized Under Individual Permit
001	☒	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

If **all** existing/proposed outfalls which discharge stormwater associated with industrial activities (and any of the allowable non-stormwater discharges) are **authorized under the MSGP**, **stop** here.

If **seeking authorization** for any outfalls which discharge stormwater associated with industrial activities (and any of the allowable non-stormwater discharges) **under an individual permit**, **proceed**.

NOTE: The following information is required for each existing/proposed stormwater outfall for which the facility is seeking individual permit authorization under this application.

3. SITE MAP (Instructions, Page 84)

Attach a site map or maps (drawn to scale) of the entire facility with the following information.

- the location of each stormwater outfall to be covered by the permit
- an outline of the drainage area that is within the facility's boundary and that contributes stormwater to each outfall to be covered by the permit
- connections or discharge points to municipal separate storm sewer systems
- locations of all structures (e.g. buildings, garages, storage tanks)
- structural control devices that are designed to reduce pollution in discharges of stormwater associated with industrial activities
- process wastewater treatment units (including ponds)
- bag house and other air treatment units exposed to stormwater (stormwater runoff, snow melt runoff, and surface runoff and drainage)
- landfills; scrapyards; surface water bodies (including wetlands)
- vehicle and equipment maintenance areas
- physical features of the site that may influence discharges of stormwater associated with industrial activities or contribute a dry weather flow
- locations where spills or leaks of reportable quality (as defined in *30 TAC § 327.4*) have occurred during the three years before this application was submitted to obtain coverage under an individual permit
- processing areas, storage areas, material loading/unloading areas, and other locations where significant materials are exposed to stormwater (stormwater runoff, snow melt runoff, and surface runoff and drainage)

☐ Check the box to confirm all the above information was provided on the facility site map(s).

Attachment: Click to enter text.

4. FACILITY/SITE INFORMATION (Instructions, Pages 84-85)

a. Provide the area of impervious surface and the total area drained by each stormwater outfall requested for authorization by this permit application.

Impervious Surfaces

Outfall	Area of Impervious Surface (include units)	Total Area Drained (include units)

b. Provide the following local area rainfall information and the source of the information.

Wettest month: Click to enter text.

Average rainfall for wettest month (total inches): Click to enter text.

25-year, 24-hour rainfall (inches): Click to enter text.

Source: Click to enter text.

c. Attach an inventory, or list, of materials currently handled at the facility that may be exposed to precipitation. **Attachment:** Click to enter text.

d. Attach narrative descriptions of the industrial processes and activities involving the materials in the above-listed inventory that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff (see instructions for guidance). **Attachment:** Click to enter text.

e. Describe any BMPs and controls the facility uses/proposes to prevent or effectively reduce pollution in stormwater discharges from the facility: Click to enter text.

5. LABORATORY ACCREDITATION CERTIFICATION (Instructions, Page 85)

Effective July 1, 2008, all laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification* with the following general exemptions:

a. The laboratory is an in-house laboratory and is:
   i. periodically inspected by the TCEQ; or
   ii. located in another state and is accredited or inspected by that state; or
   iii. performing work for another company with a unit located in the same site; or
   vi. performing pro bono work for a governmental agency or charitable organization.

b. The laboratory is accredited under federal law.

c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.

d. The laboratory supplies data for which the TCEQ does not offer accreditation.

Review *30 TAC Chapter 25* for specific requirements. The following certification statement shall be signed and submitted with every application. See Instructions, Page 32, for a list of approved signatories.

I, Click to enter text., certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25*, *Environmental Testing Laboratory Accreditation and Certification*.

_____

(Signature)

6. POLLUTANT ANALYSIS (Instructions, Pages 85-88)

a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): Click to enter text.

b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.

c. Complete Table 17 as directed on page 90 of the Instructions.

Table 17 Pollutant Analysis for Outfall No.: Click to enter text

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled	MAL (mg/L)
pH (standard units)	(max)	—	(min)	—		—
Total suspended solids						—
Chemical oxygen demand						—
Total organic carbon						—
Oil and grease						—
Arsenic, total						0.0005
Barium, total						0.003
Cadmium, total						0.001
Chromium, total						0.003
Chromium, trivalent						—
Chromium, hexavalent						0.003
Copper, total						0.002
Lead, total						0.0005
Mercury, total						0.000005
Nickel, total						0.002
Selenium, total						0.005
Silver, total						0.0005
Zinc, total						0.005

* Taken during first 30 minutes of storm event
** Flow-weighted composite sample

d. Complete Table 18 as directed on pages 90-92 of the Instructions.

Table 18 Pollutant Analysis for Outfall No.: Click to enter text

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled

* Taken during first 30 minutes of storm event
** Flow-weighted composite sample

Attachment: Click to enter text.

7. STORM EVENT DATA (Instructions, Page 88)

Provide the following data for the storm event(s) which resulted in the maximum values for the analytical data submitted:

Date of storm event: Click to enter text.

Duration of storm event (minutes): Click to enter text.

Total rainfall during storm event (inches): Click to enter text.

Number of hours the between beginning of the storm measured and the end of the previous measurable storm event (hours): Click to enter text.

Maximum flow rate during rain event (gallons/minute): Click to enter text.

Total stormwater flow from rain event (gallons): Click to enter text.

Provide a description of the method of flow measurement or estimate: Click to enter text.

Attachment A

Core Data Form

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN **600131858**		RN

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	00/01/2019

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
City of Corpus Christi	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*

11. Type of Customer:	☐ Corporation	☐ Individual	Partnership: ☐ General ☐ Limited
Government: ☒ City ☐ County ☐ Federal ☐ State ☐ Other		☐ Sole Proprietorship	☐ Other:

12. Number of Employees	13. Independently Owned and Operated?
☐ 0-20 ☐ 21-100 ☐ 101-250 ☒ 251-500 ☐ 501 and higher	☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:	P.O. Box 9277						
	City	Corpus Christi	State	TX	ZIP	78469	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	estebanr2@cctexas.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(361) 826-2489		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Inner Harbor Desalination Plant

23. Street Address of the Regulated Entity: *(No PO Boxes)*								
	City		**State**		**ZIP**		**ZIP + 4**	
24. County	Nueces							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Intersection of Nueces Bay Boulevard and East Broadway Street

26. Nearest City	**State**	**Nearest ZIP Code**
Corpus Christi	TX	78401

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
27	48	27.673	97	25	5.231

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4941		221310	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Seawater desalination

34. Mailing Address:	**P.O. Box 9277**							
	City	**Corpus Christi**	**State**	**TX**	**ZIP**	**78469**	**ZIP + 4**	

35. E-Mail Address:	**estebanr2@cctexas.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(361) 826-2489		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Katie Leatherwood	**41. Title:**	Environmental Scientist

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(817) 735-7503		(817) 735-7492	katie.leatherwood@freese.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	City of Corpus Christi	**Job Title:**	City Manager
Name*(In Print)* **:**	Peter Zanoni	**Phone:**	(361) 826-3220
Signature:		**Date:**	January 17, 2020

Attachment B

Property Ownership Information

Placeholder for Long-Term Lease Agreement

Real estate negotiations are ongoing with Flint Hills Resources for the proposed plant site. The City will provide a copy of the final executed long-term lease agreement and deed-recorded easement to the TCEQ upon their execution.

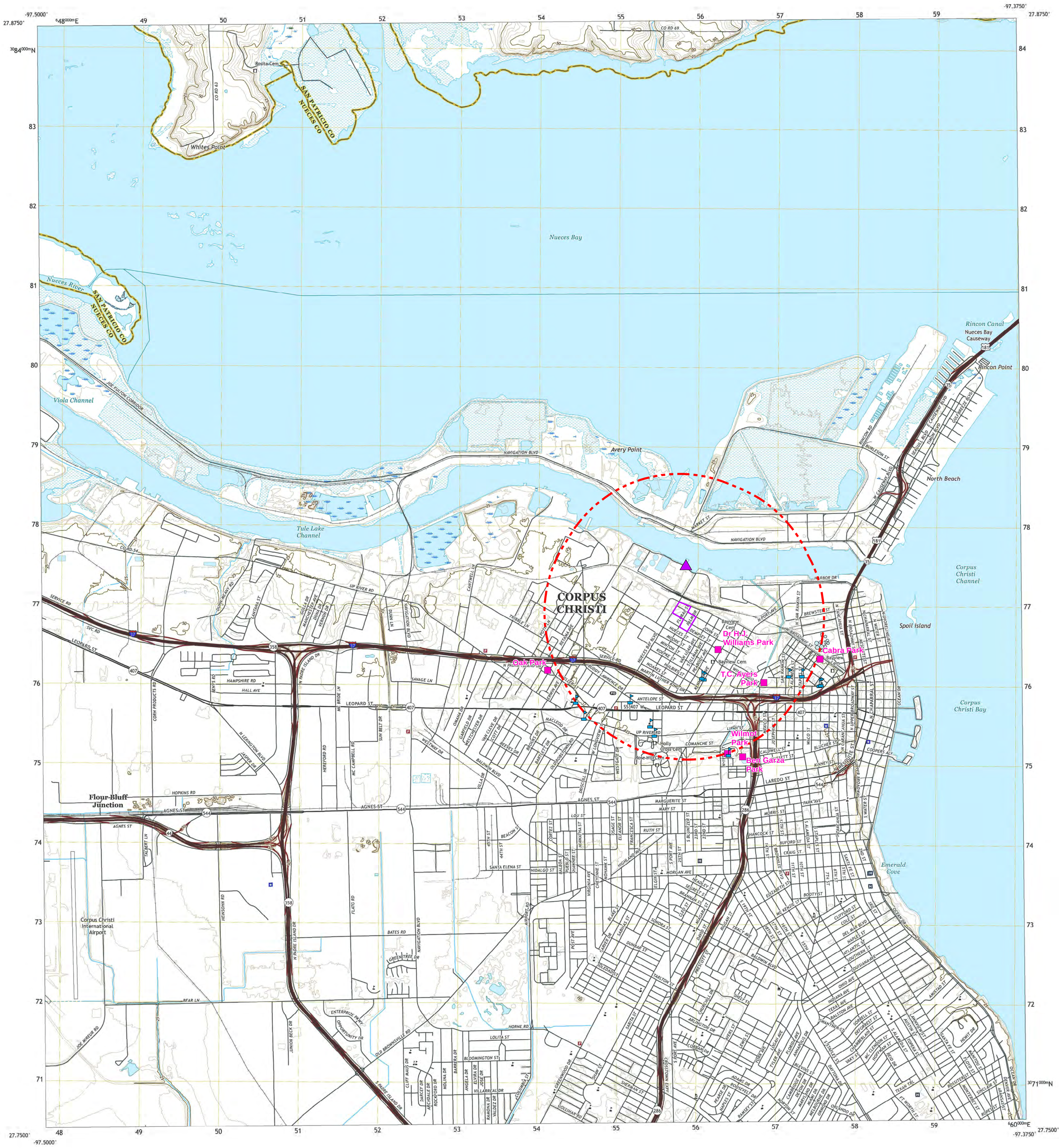
Attachment C

USGS Topographic Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

CORPUS CHRISTI QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP,	September 2016 - December 2016
Roads	U.S. Census Bureau,	2015 - 2018
Names	GNIS,	1979 - 2018
Hydrography	National Hydrography Dataset,	2003 - 2018
Contours	National Elevation Dataset,	2012
Boundaries	Multiple sources; see metadata file	2016 - 2017
Wetlands	FWS National Wetlands Inventory	2004 - 2006

MN
GN
3°32' 63 MILS
0°44' 13 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
FR
Grid Zone Designation 14R

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 MILES 1
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Odem
2 Taft
3 Gregory
4 Annaville
5 Portland
6 Petronila NE
7 Oso Creek NW
8 Oso Creek NE
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

CORPUS CHRISTI, TX
2019

FREESE AND NICHOLS
FREESE AND NICHOLS, INC
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

N W E S
0 1,000 2,000 4,000 6,000 Feet

CITY OF CORPUS CHRISTI
Seawater Desalination

Project Location on
2019 USGS Topograpic Base
Corpus Christi Quad

- Schools
- Parks
- Parks
- TWDB Well Locations
- Applicant's Property Boundary
- 1 Mile Buffer

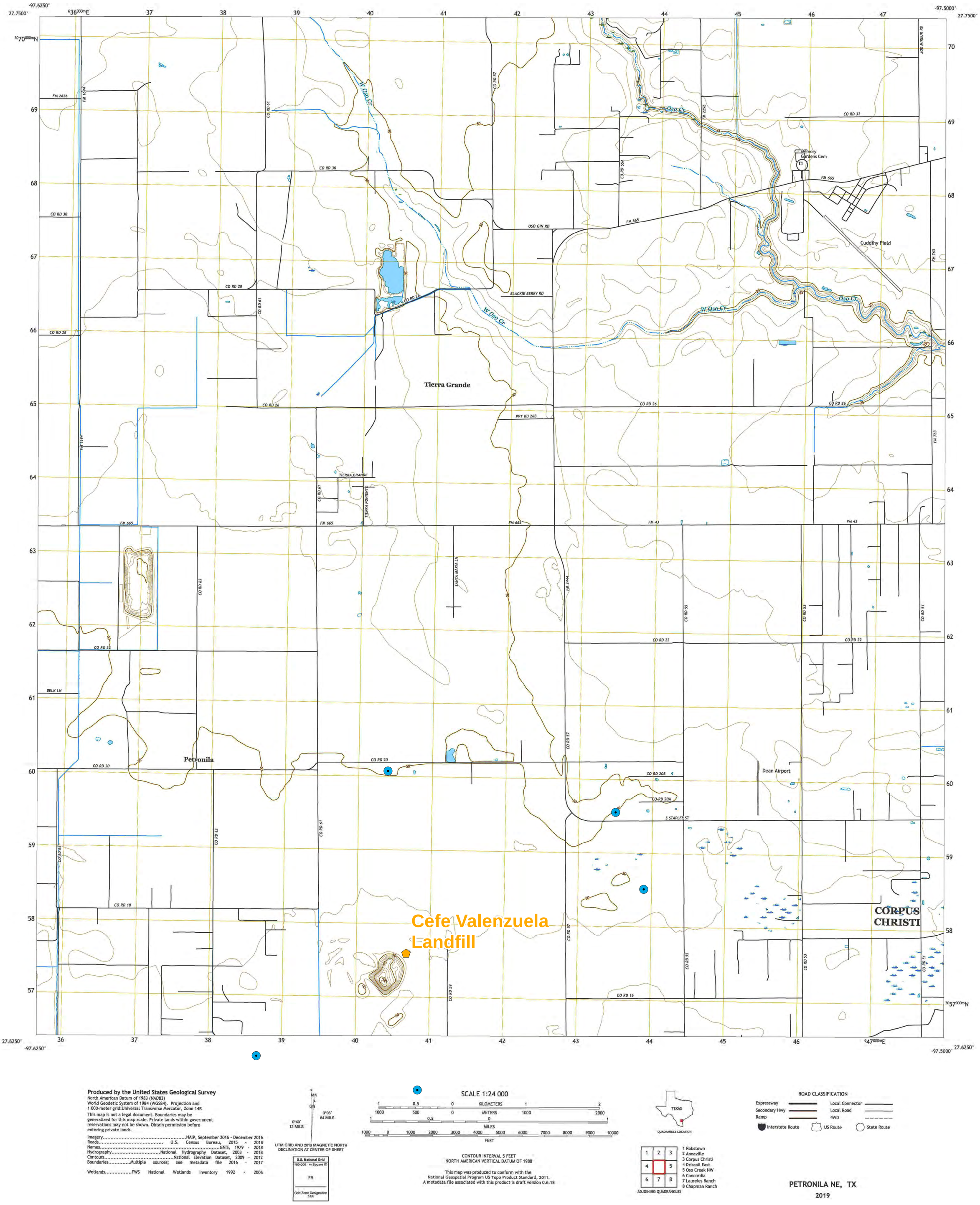
1
Figure

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

PETRONILA NE QUADRANGLE
TEXAS - NUECES COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, September 2016 - December 2016
Roads	U.S. Census Bureau, 2015 - 2018
Names	GNIS, 1979 - 2018
Hydrography	National Hydrography Dataset, 2003 - 2018
Contours	National Elevation Dataset, 2009 - 2012
Boundaries	Multiple sources; see metadata file 2016 - 2017
Wetlands	FWS National Wetlands Inventory 1992 - 2006

MN
GN
3°36' 64 MILS
0°40' 12 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
PR
Grid Zone Designation 14R

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Robstown
2 Annaville
3 Corpus Christi
4 Driscoll East
5 Oso Creek NW
6 Concordia
7 Laureles Ranch
8 Chapman Ranch
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PETRONILA NE, TX
2019

FREESE AND NICHOLS
FREESE AND NICHOLS, INC
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

N W E S
0 1,000 2,000 4,000 6,000 Feet

CITY OF CORPUS CHRISTI
Seawater Desalination

Disposal Site on
2019 USGS Topograpic Base
Petronila NE Quad

- TWDB Well Locations
- Cefe Valenzuela Landfill

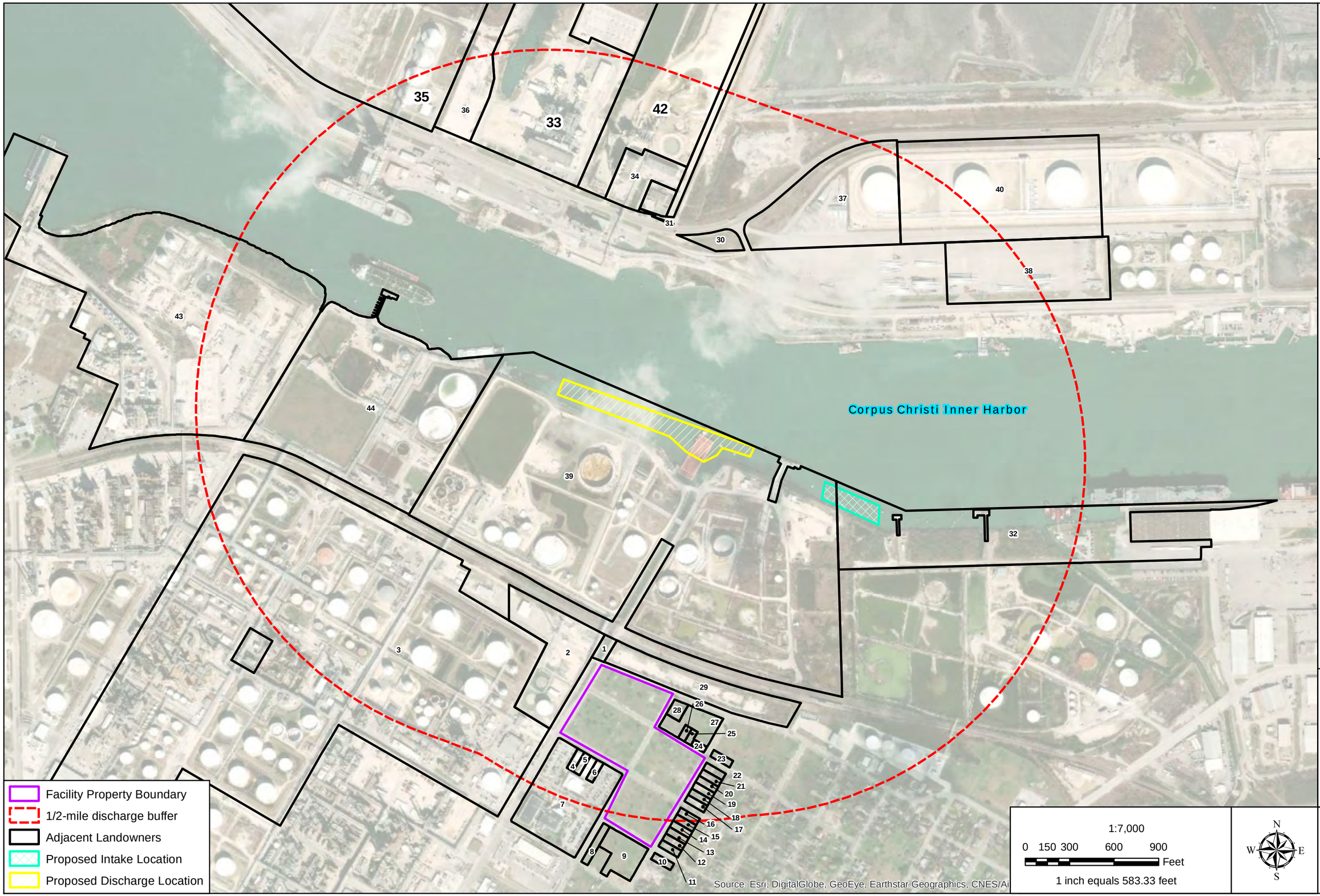
1
Figure

Attachment D

Affected Landowner Map

Landowner List and Labels

Original Photographs



FN PROJECT NO. COR18468

DATE CREATED 10/27/2019

DATUM & COORDINATE SYSTEM NAD83 State Plane (feet) Texas North Central

FILE NAME Affected Landowners_ Nueces Bay Blvd Site

PREPARED BY ANM

CITY OF CORPUS CHRISTI

TPDES Permit Application

Affected Landowners List

FREESE NICHOLS
FREESE AND NICHOLS
4055 International Plaza Suite 200
Fort Worth, Texas 76109-4895
(817) 735-7300

1:7,000

0 150 300 600 900 Feet

1 inch equals 583.33 feet

N W E S

2

FIGURE

Path: H:\ENVIRONMENTAL\Working\TPDES\Affected Landowners_ Nueces Bay Blvd Site.mxd

Cross-Referenced Landowner List

1 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

2 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

3 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

4 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

5 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

6 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

7 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

8 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

9 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

10 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

11 Liliana Rodriquez
1222 Crescent Cir
Corpus Christi, TX 78412-3520

12 Williams Gaaries Charles
3751 Wilson Drive
Corpus Christi, TX 78408-3351

13 Newbill Elaine and Anthony D Newbill
3368 Cape May Ct.
Dumfries, VA 22026-2199

14 Rodela Rosalinda
PO Box 7252
Corpus Christi, TX 78467-7252

15 Johnson Norman
1510 Palm Drive
Corpus Christi, TX 78407

16 Clay Johnny H III Tr/Of
1924 Palm Drive
Corpus Christi, TX 78407

17 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

18 Cantu Guadalupe Pizana
2006 Palm
Corpus Christi, TX 78407

19 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

20 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

21 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

22 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

23 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

24 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

25 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

26 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

27 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

28 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

29 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

30 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

31 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

32 Nueces Co Navigation District
PO Box 1541
Corpus Christi, TX 78403

33 Nueces Bay WLE LP
1780 Hughes Landing Blvd Ste 800
Spring, TX 77380-4021

34 Texas Cement Company
3811 Turtle Creek Blvd
Dallas, TX 75219-4487

35 Nueces Co Navigation District
PO Box 1541
Corpus Christi, TX 78403

36 Electric Transmission Texas LLC
PO Box 16428
Columbus, OH 43216-6428

37 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

38 Nueces Co Navigation District
PO Box 1541
Corpus Christi, TX 78403

39 Flint Hills Resources
PO Box 3755
Wichita, KS 67201-3755

40 Port of Corpus Christi Authority
222 Power Street
Corpus Christi, TX 78401-1529

41 Texas Cement Company
3811 Turtle Creek Blvd
Dallas, TX 75219-4487

42 Texas Cement Company
3811 Turtle Creek Blvd
Dallas, TX 75219-4487

43 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

44 Citgo Refining and Chemicals
PO Box 4689
Houston, TX 77210-4689

FLINT HILLS RESOURCES
PO BOX 3755
WICHITA, KS 67201-3755

CITGO REFINING AND CHEMICALS
PO BOX 4689
HOUSTON, TX 77210-4689

PORT OF CORPUS CHRISTI AUTHORITY
222 POWER STREET
CORPUS CHRISTI, TX 78401-1529

LILIANA RODRIQUEZ
1222 CRESCENT CIR
CORPUS CHRISTI, TX 78412-3520

WILLIAMS GAARIES CHARLES
3751 WILSON DRIVE
CORPUS CHRISTI, TX 78408-3351

NEWBILL ELAINE AND
ANTHONY D NEWBILL
3368 CAPE MAY CT.
DUMFRIES, VA 22026-2199

RODELA ROSALINDA
PO BOX 7252
CORPUS CHRISTI, TX 78467-7252

JOHNSON NORMAN
1510 PALM DRIVE
CORPUS CHRISTI, TX 78407

CLAY JOHNNY H III TR/OF
1924 PALM DRIVE
CORPUS CHRISTI, TX 78407

CANTU GUADALUPE PIZANA
2006 PALM
CORPUS CHRISTI, TX 78407

NUECES CO NAVIGATION DISTRICT
PO BOX 1541
CORPUS CHRISTI, TX 78403

NUECES BAY WLE LP
1780 HUGHES LANDING BLVD
STE 800
SPRING, TX 77380-4021

TEXAS CEMENT COMPANY
3811 TURTLE CREEK BLVD
DALLAS, TX 75219-4487

ELECTRIC TRANSMISSION TEXAS LLC
PO BOX 16428
COLUMBUS, OH 43216-6428

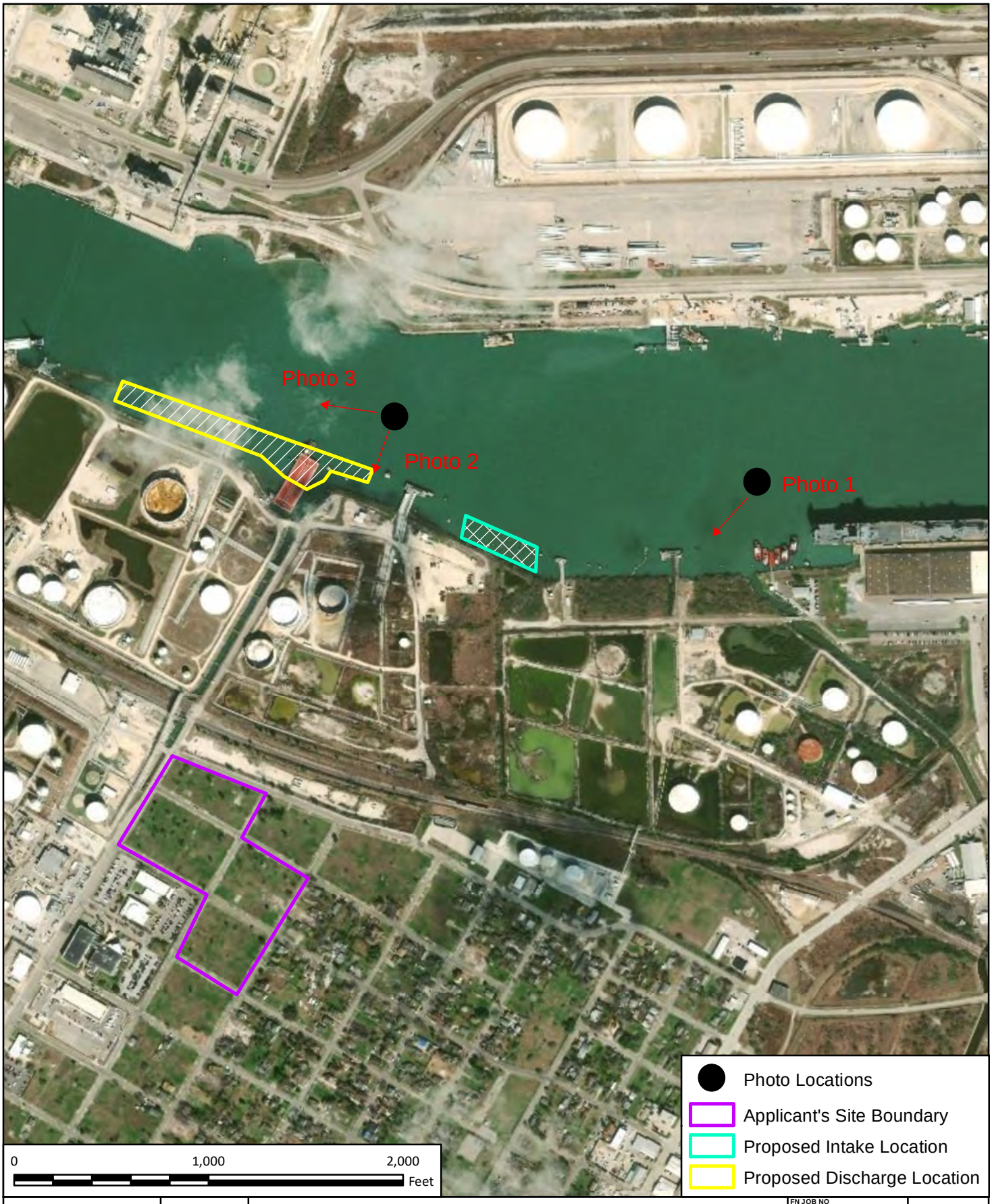
Original Photographs
August 1, 2019

Photo 1- Photo pointing south towards the proposed discharge location.

Photo 2- Photo showing north of proposed discharge location.

Original Photographs
August 1, 2019

Photo 3- Photo showing northwest of proposed discharge location.



FREESE AND NICHOLS, INC
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

City of Corpus Christi

Seawater Desalination Plant

Photograph Plot Map

FN JOB NO	COR18468
FILE NAME	PhotoPlotMap_InnerH.mxd
DATE	1/15/2020
SCALE	1:8,000
DESIGNED	ANM
DRAFTED	02905

4

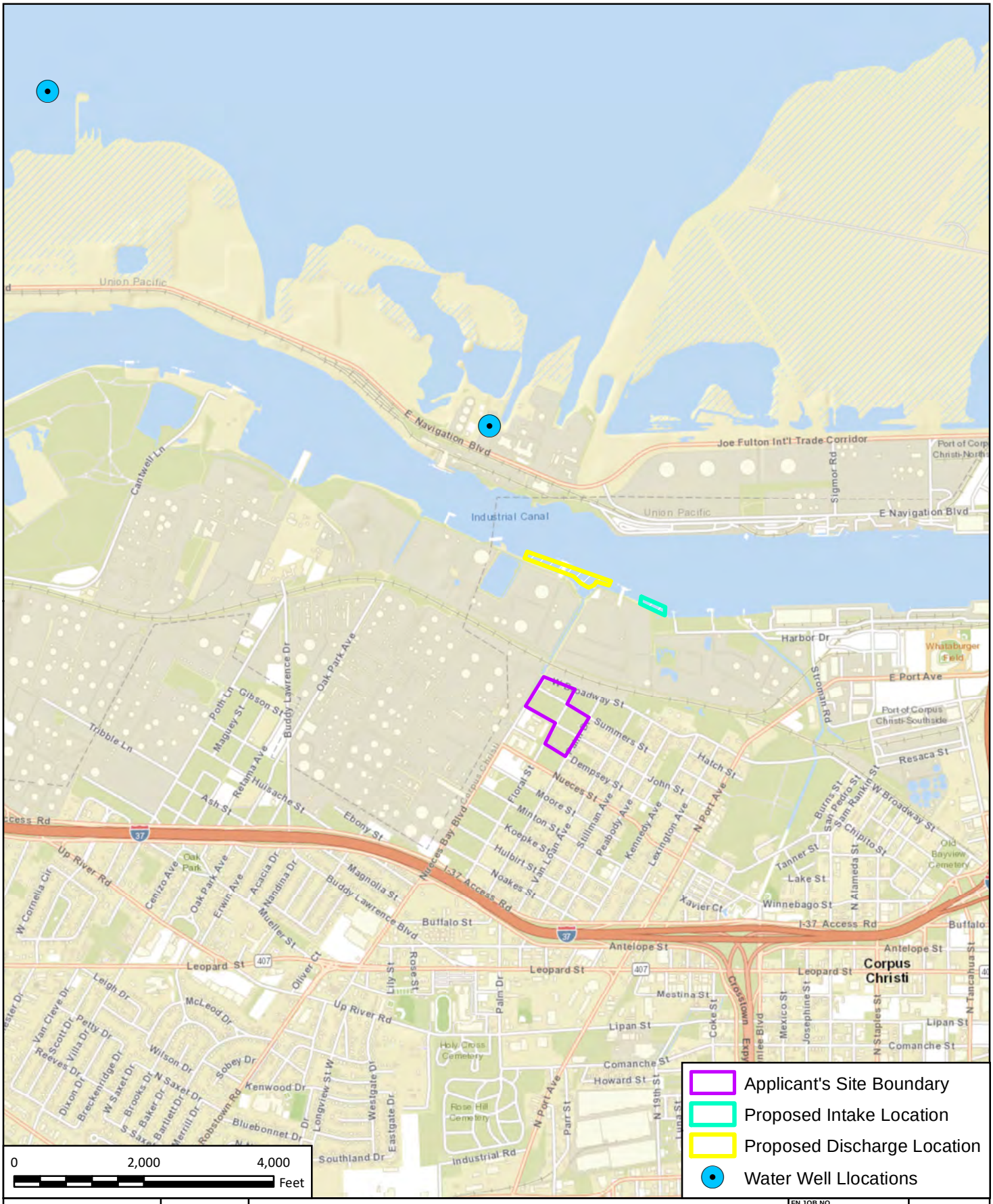
FIGURE

Path: H:\ENVIRONMENTAL\Working\TPDES\PhotoPlotMap_InnerH.mxd

NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

Attachment E

SPIF Map



FREESE AND NICHOLS
FREESE AND NICHOLS, INC
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

City of Corpus Christi

Seawater Desalination Plant

SPIF Topographic Map

FN JOB NO	COR18468
FILE NAME	SPIF_Nueces Bay Blvd Site.mxd
DATE	1/15/2020
SCALE	1:24,000
DESIGNED	ANM
DRAFTED	02905

3

FIGURE

Path: H:\ENVIRONMENTAL\Working\TPDES\SPIF_Nueces Bay Blvd Site.mxd

NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

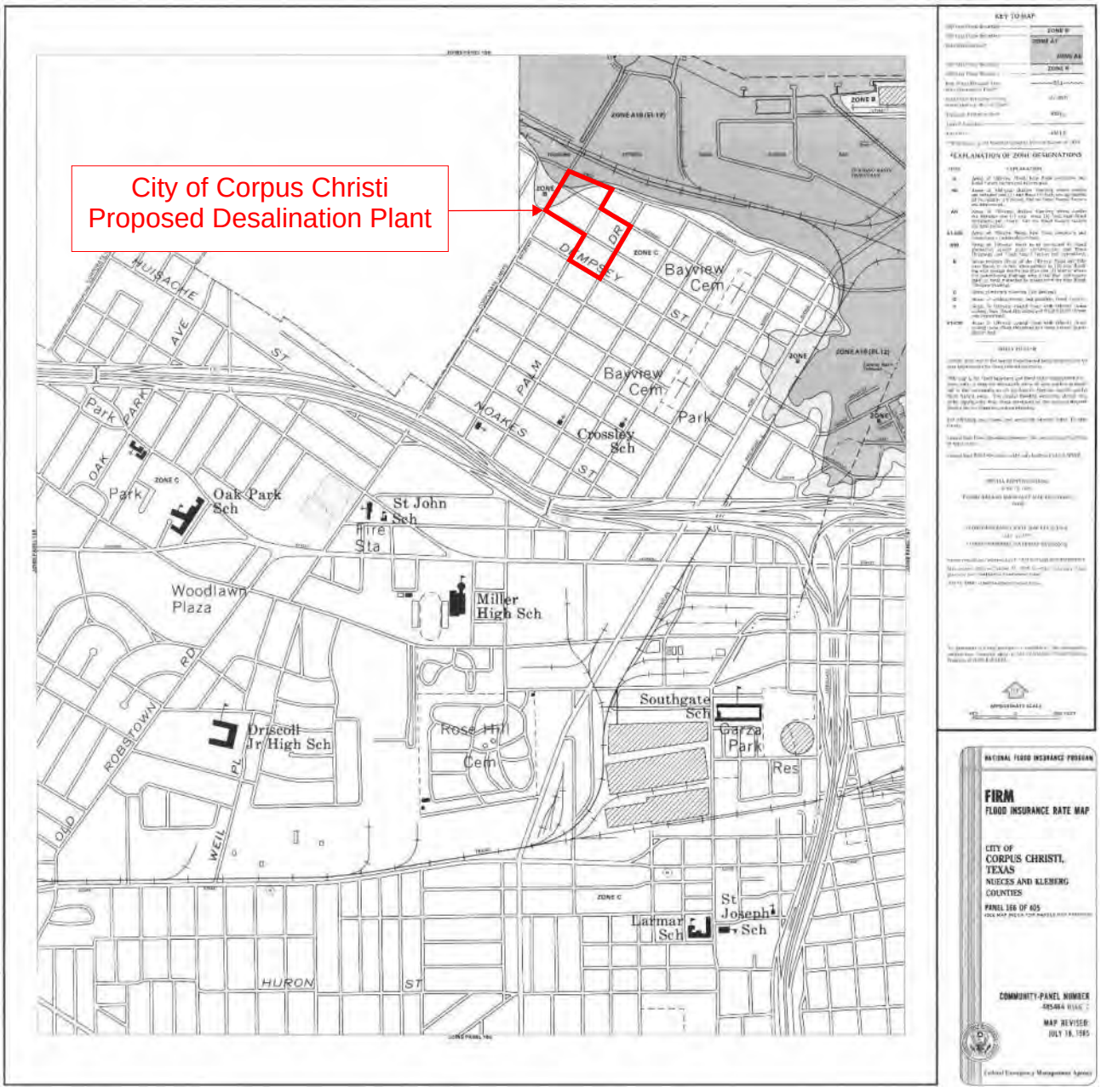
Attachment F

Site Map

FEMA Map

Placeholder for Site Map

The proposed desalination plant will be procured by the City of Corpus Christi as a design-build-operate facility. This permit application has been submitted in advance of final lease negotiations and layout design of the proposed plant facility. A site map showing the final proposed plant layout will be submitted to the TCEQ upon completion.

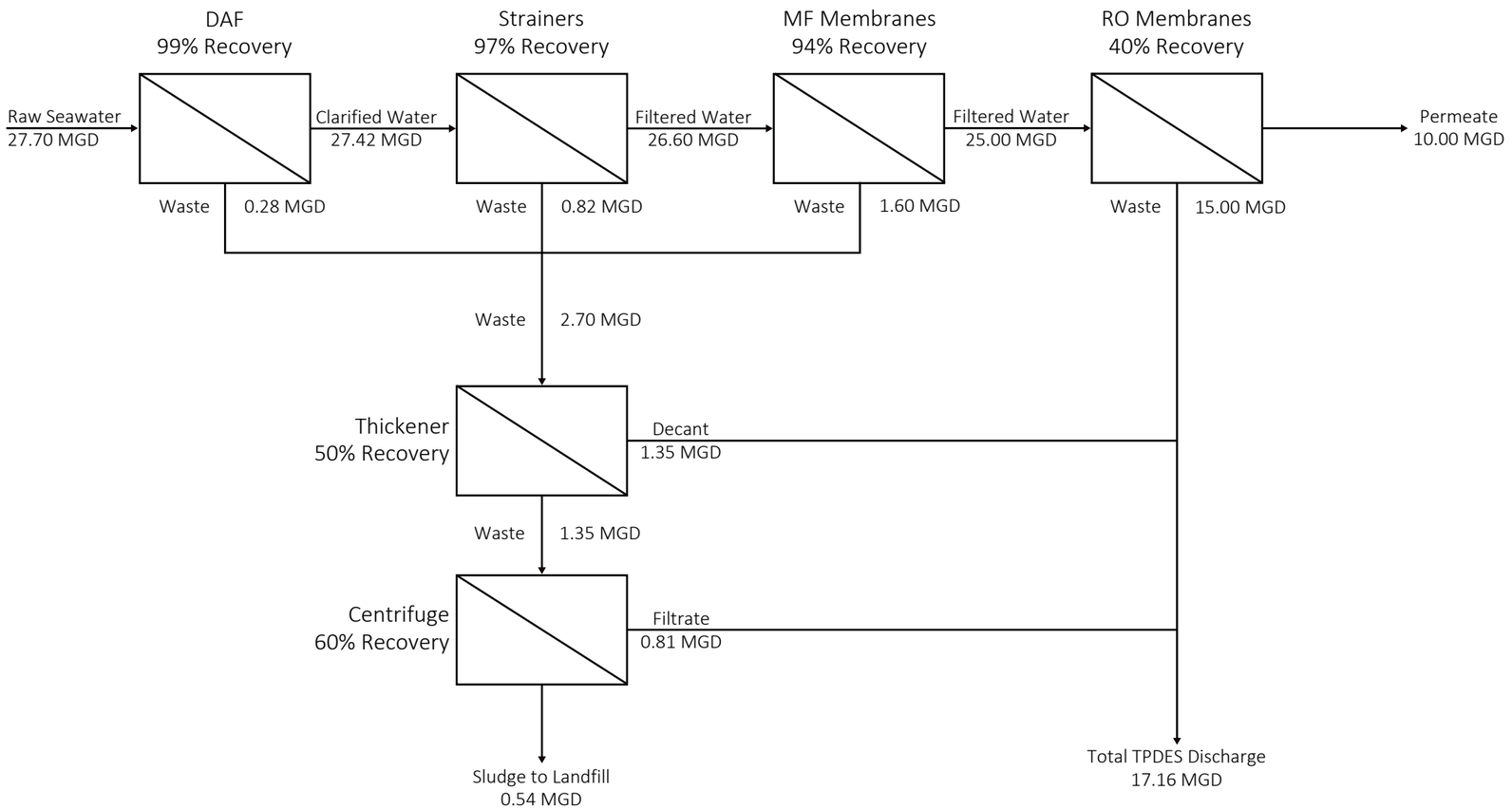

City of Corpus Christi
Proposed Desalination Plant
Bayview Cem
Bayview Cem
Park
Crossley Sch
St John Sch
Fire Sta
Oak Park Sch
Park
Woodlawn Plaza
Miller High Sch
Driscoll Jr High Sch
Rose Hill Cem
Southgate Sch
Garza Park
Res
Lamar Sch
St Joseph Sch
HURON ST
DUMPSEY DR
PALM ST
NOAKES ST
HUISACHE AVE
PARK
OAK
ROBSTOWN RD
WEIL PL
OLD
ZONE A10 (EL 12)
ZONE B
ZONE C
KEY TO MAP
EXPLANATION OF ZONE DESIGNATIONS
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
CORPUS CHRISTI,
TEXAS
NUECES AND KLEBERG
COUNTIES
PANEL 166 OF 605
COMMUNITY-PANEL NUMBER
MAP REVISED
JULY 16, 1985

Attachment G

Flow Schematics

Water Balance Sheets

City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Process Flow Diagram - Initial 10 MGD Plant



City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Water Balance Sheet - Initial 10 MGD Plant

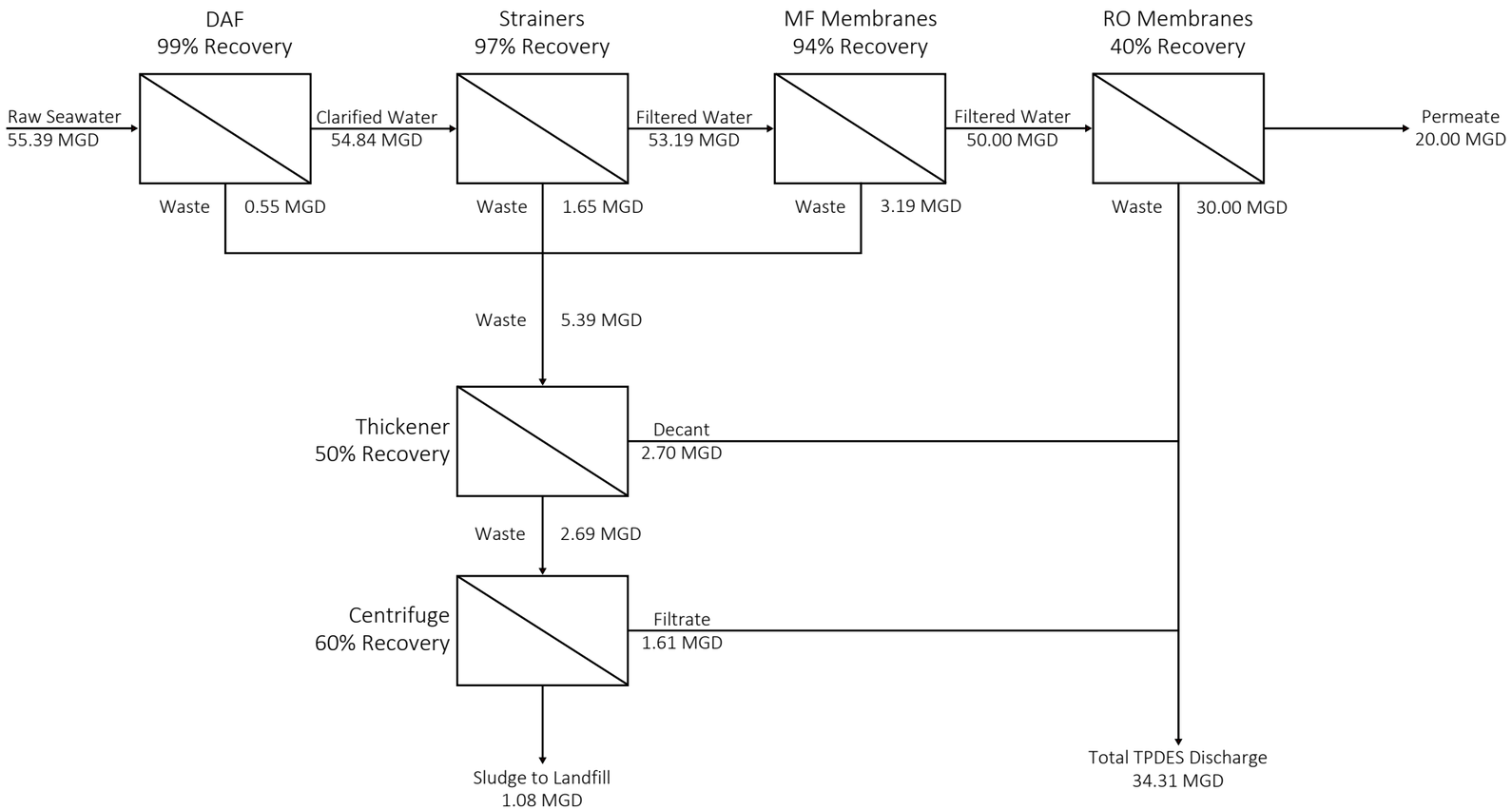
Date of Revision: 11/26/2019

Design Process	Manufacturer or approved equal	Design paramters	Recovery
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%
Rapid Mixer	Lightening	G value 1,000/sec	100%
Clarifier-Diisolved Air Flotation	Xylem	10 gpm/sf	99%
Strainer self-claening	Arkal Filtration	300 micron discs	97%
Microfiltration membranes	PALL, Inc.	Microza	94%
Cartridge Filters	Lenntech	5 microns	100%
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%
Carbon dixiode addition		pH < 6.5	100%
Calcite filters (alkalinity)		pH > 8.3	100%
Chlorination / ammonia		Chloramine < 4 mg/l	100%
Claerwell Stoarge			
High Service Pump Station			
Solids Thickener			
Centifuge			
Solids to landfill (daily cover)			

Water Balance:		27.70 MGD
Clar-DAF sludge	99.00%	27.42 MGD
Strainer backwash	97.00%	26.60 MGD
MF Membranes Backwash	94.00%	25.00 MGD
RO permeate recovery	40.00%	
RO Brine reject	60.00%	
Decant (supernatant) thickner	50.00%	
Centrifuge filtrate return	60.00%	

Raw Water Total Feed:		
Permeate	**10**	**MGD**
RO Feed Water	25.00	MGD
Total Raw Water Feed	**27.70**	**MGD**
TPDES Discharge :		
RO Brine discahrge	15.00	MGD
Clar-DAF	0.28	MGD
Strainer	0.82	MGD
MF Backwash	1.60	MGD
Sub-total	2.70	MGD
Thickener Decant	1.35	MGD
Centrifuge filtrate	0.81	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**17.16**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**20.59**	**MGD**
Sludge Disposal to landfill	0.54	MGD

City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Process Flow Diagram - Expanded 20 MGD Plant



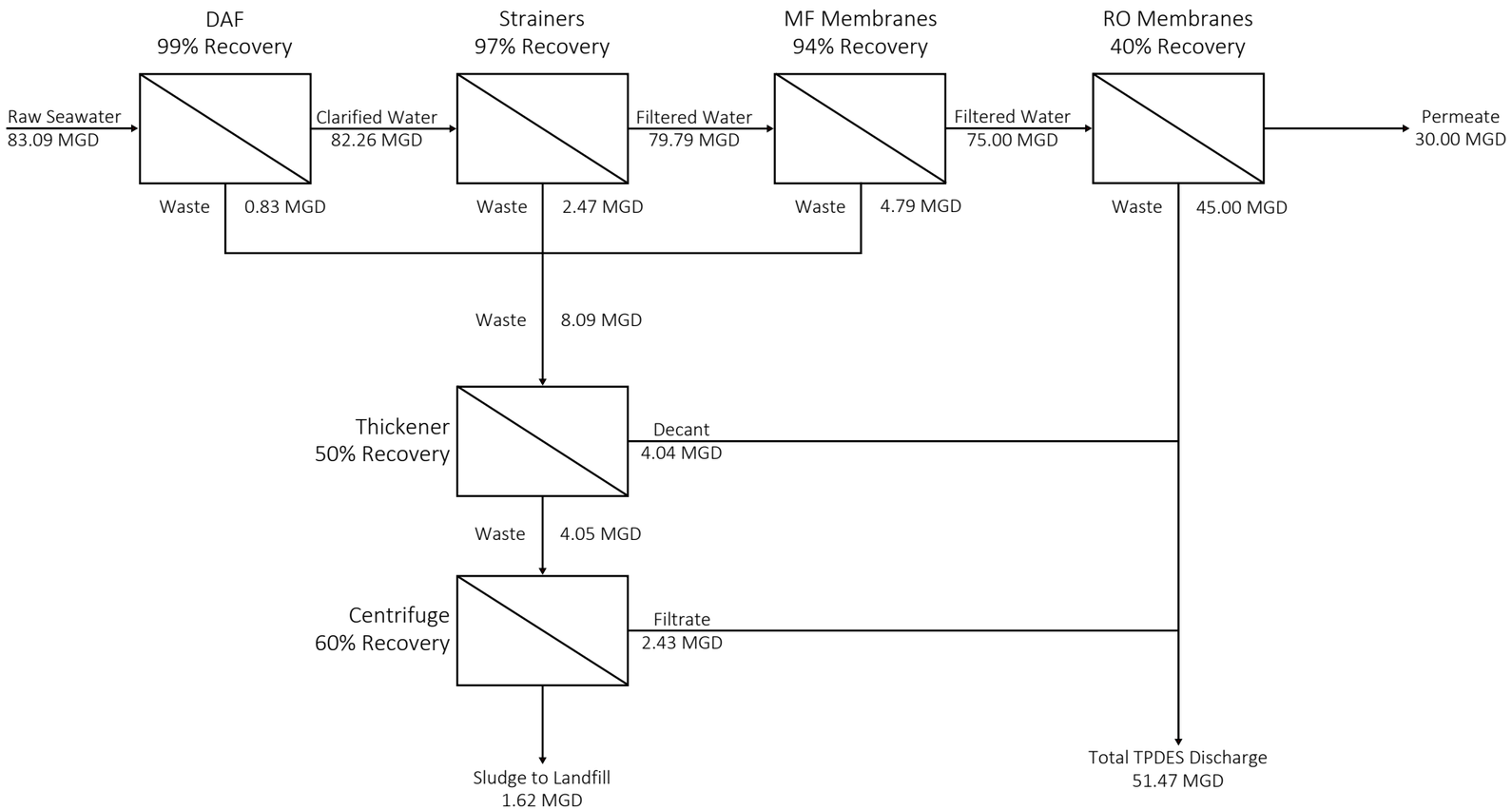
City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Water Balance Sheet - Expanded 20 MGD Plant

Date of Revision:		11/26/2019		
Design Process	Manufacturer or approved equal	Design paramters	Recovery	
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%	
Rapid Mixer	Lightening	G value 1,000/sec	100%	
Clarifier-Diisolved Air Flotation	Xylem	10 gpm/sf	99%	
Strainer self-claening	Arkal Filtration	300 micron discs	97%	
Microfiltration membranes	PALL, Inc.	Microza	94%	
Cartridge Filters	Lenntech	5 microns	100%	
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%	
Carbon dixiode addition		pH < 6.5	100%	
Calcite filters (alkalinity)		pH > 8.3	100%	
Chlorination / ammonia		Chloramine < 4 mg/l	100%	
Claerwell Stoarge				
High Service Pump Station				
Solids Thickener				
Centifuge				
Solids to landfill (daily cover)				

Water Balance:			55.39 MGD
Clar-DAF sludge		99.00%	54.84 MGD
Strainer backwash		97.00%	53.19 MGD
MF Membranes Backwash		94.00%	50.00 MGD
RO permeate recovery		40.00%	
RO Brine reject		60.00%	
Decant (supernatant) thickner		50.00%	
Centrifuge filtrate return		60.00%	

Raw Water Total Feed:		
Permeate	**20**	**MGD**
RO Feed Water	50.00	MGD
Total Raw Water Feed	**55.39**	**MGD**
TPDES Discharge :		
RO Brine discahrge	30.00	MGD
Clar-DAF	0.55	MGD
Strainer	1.65	MGD
MF Backwash	3.19	MGD
Sub-total	5.39	MGD
Thickener Decant	2.70	MGD
Centrifuge filtrate	1.62	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**34.31**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**41.17**	**MGD**
Sludge Disposal to landfill	1.08	MGD

City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Process Flow Diagram - Ultimate 30 MGD Plant



City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Water Balance Sheet - Ultimate 30 MGD Plant

Date of Revision:	11/26/2019		
Design Process	Manufacturer or approved equal	Design paramters	Recovery
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%
Rapid Mixer	Lightening	G value 1,000/sec	100%
Clarifier-Diisolved Air Flotation	Xylem	10 gpm/sf	99%
Strainer self-claening	Arkal Filtration	300 micron discs	97%
Microfiltration membranes	PALL, Inc.	Microza	94%
Cartridge Filters	Lenntech	5 microns	100%
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%
Carbon dixiode addition		pH < 6.5	100%
Calcite filters (alkalinity)		pH > 8.3	100%
Chlorination / ammonia		Chloramine < 4 mg/l	100%
Claerwell Stoarge			
High Service Pump Station			
Solids Thickener			
Centifuge			
Solids to landfill (daily cover)			

Water Balance:		83.09 MGD
Clar-DAF sludge	99.00%	82.25 MGD
Strainer backwash	97.00%	79.79 MGD
MF Membranes Backwash	94.00%	75.00 MGD
RO permeate recovery	40.00%	
RO Brine reject	60.00%	
Decant (supernatant) thickner	50.00%	
Centrifuge filtrate return	60.00%	

Raw Water Total Feed:		
Permeate	**30**	**MGD**
RO Feed Water	75.00	MGD
Total Raw Water Feed	**83.09**	**MGD**
TPDES Discharge :		
RO Brine discahrge	45.00	MGD
Clar-DAF	0.83	MGD
Strainer	2.47	MGD
MF Backwash	4.79	MGD
Sub-total	8.09	MGD
Thickener Decant	4.04	MGD
Centrifuge filtrate	2.43	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**51.47**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**61.76**	**MGD**
Sludge Disposal to landfill	1.62	MGD

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service

800 N. Shoreline Blvd., Suite 1600N + Corpus Christi, Texas 78401 + 361-561-6500 + FAX 817-735-7491 www.freese.com

November 29, 2021

Mr. Jaspinder Singh
Water Quality Division (MC-148)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Re: Application for Proposed Permit No. WQ0005289000 (EPA I.D. No. TX0139874)
Permit Application Attachment G Update
Applicant: City of Corpus Christi (CN600131858)
Site: Inner Harbor Desalination Plant (RN110940152)

Dear Mr. Singh:

Freese and Nichols, Inc. (FNI), on behalf of the City of Corpus Christi, is providing materials to replace Attachment G of the original application for Wastewater Permit No. WQ0005289000 for the Inner Harbor Desalination Plant. The updated flow schematics and water balance sheets reflect minor revisions to quantity and quality information regarding sludge produced. The proposed plant flow is not affected as a result of the update to the provided materials.

Please feel free to contact me for additional information as necessary.

Sincerely,

Katie Leatherwood, P.G.
Freese and Nichols, Inc.

cc: Mr. Esteban Ramos, City of Corpus Christi
File COR20596

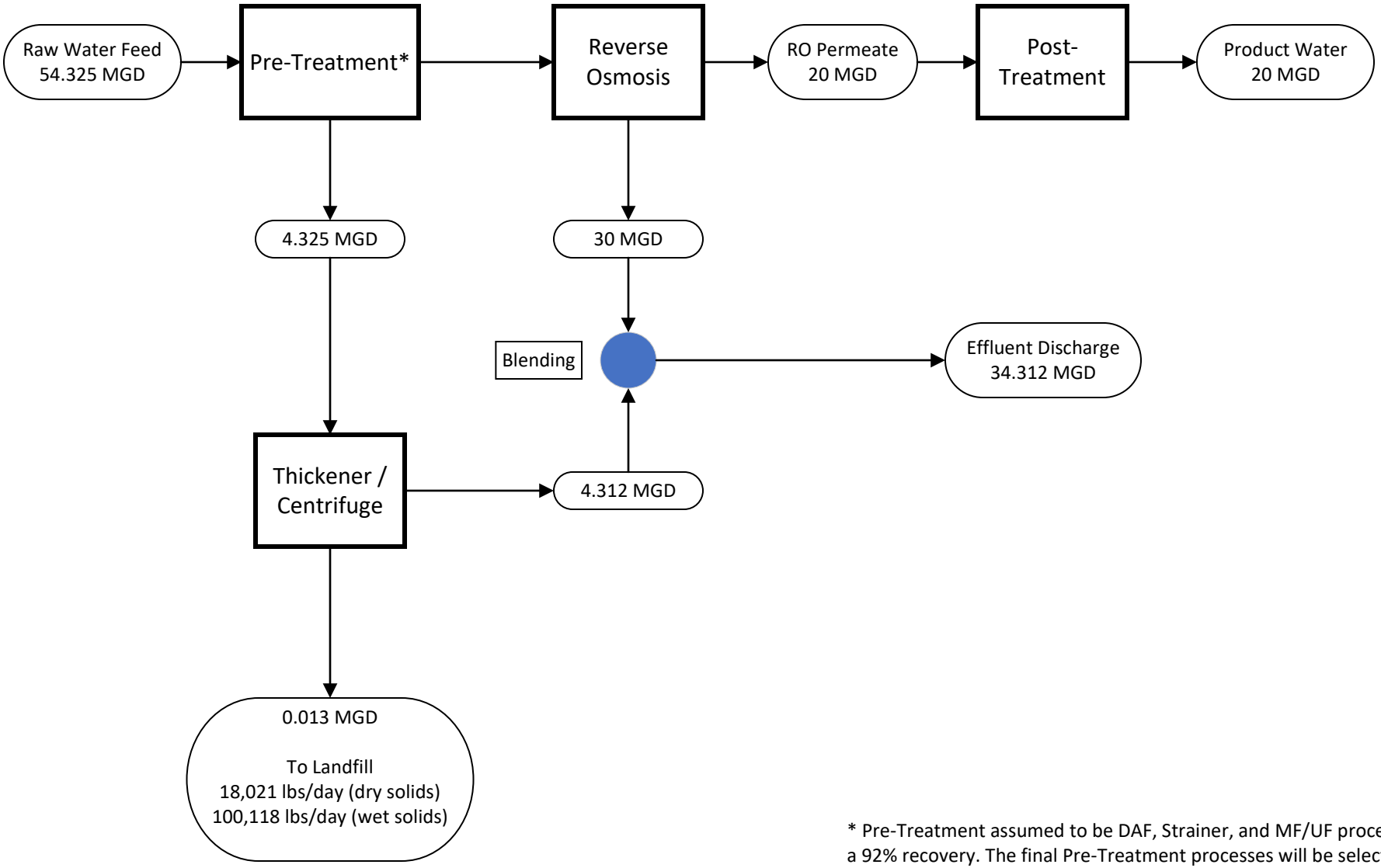
Attachments

Attachment G

Inner Harbor Plant

Flow Schematics
Water Balance Sheets

City of Corpus Christi Inner Harbor Seawater Desalination
20 MGD Water Production / RO Recovery 40%
Water Balance Flow Chart



* Pre-Treatment assumed to be DAF, Strainer, and MF/UF processes with a 92% recovery. The final Pre-Treatment processes will be selected by the General Contractor to achieve a recovery ≥ 92%

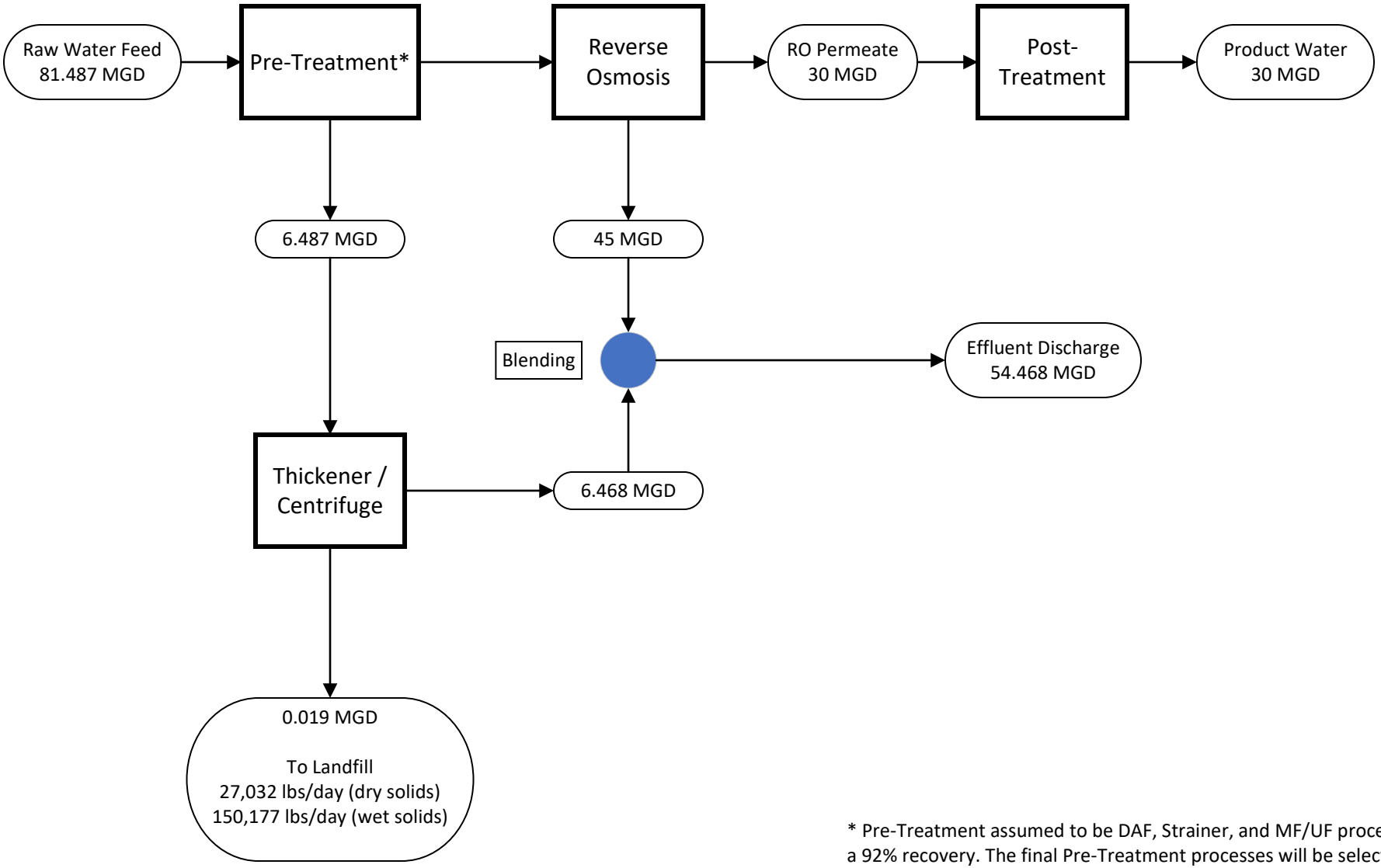
City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Water Balance Sheet - Expanded 20 MGD Plant

Date of Revision:		11/18/2021		
Design Process	Manufacturer or approved equal	Design parameters	Recovery	
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%	
Rapid Mixer	Lightening	G value 1,000/sec	100%	
Clarifier-Dissolved Air Flotation	Xylem	10 gpm/sf	98.00%	
Strainer self-cleaning	Arkal Filtration	300 micron discs	98.86%	
Microfiltration membranes	PALL, Inc.	Microza	95.00%	
Cartridge Filters	Lenntech	5 microns	100%	
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%	
Carbon dioxide addition		pH < 6.5	100%	
Calcite filters (alkalinity)		pH > 8.3	100%	
Chlorination / ammonia		Chloramine < 4 mg/l	100%	
Clearwell Storage				
High Service Pump Station				
Solids Thickener				
Centrifuge				
Solids to landfill (daily cover)				

Water Balance:		54.32 MGD
Clar-DAF sludge	98.00%	53.24 MGD
Strainer backwash	98.86%	52.63 MGD
MF Membranes Backwash	95.00%	50.00 MGD
RO permeate recovery	40.00%	
RO Brine reject	60.00%	
Decant (supernatant) thickener	60.00%	
Centrifuge filtrate return	99.25%	

Raw Water Total Feed:		
Permeate	**20**	**MGD**
RO Feed Water	50.00	MGD
Raw Water Feed Annual Average	**54.325**	**MGD**
Raw Water Maximum Daily Peak /Average Ratio	**120.00%**	
Raw Water Maximum Daily	**65.19**	**MGD**
TPDES Discharge :		
RO Brine discharge	30.00	MGD
Clar-DAF	1.09	MGD
Strainer	0.61	MGD
MF Backwash	2.63	MGD
Sub-total	4.325	MGD
Thickener Decant	2.59	MGD
Centrifuge filtrate	1.72	MGD
Total thickener/centrifuge discharge	4.312	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**34.312**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**41.17**	**MGD**
Sludge Disposal to landfill	0.013	MGD

City of Corpus Christi Inner Harbor Seawater Desalination
30 MGD Water Production / RO Recovery 40%
Water Balance Flow Chart



* Pre-Treatment assumed to be DAF, Strainer, and MF/UF processes with a 92% recovery. The final Pre-Treatment processes will be selected by the General Contractor to achieve a recovery ≥ 92%

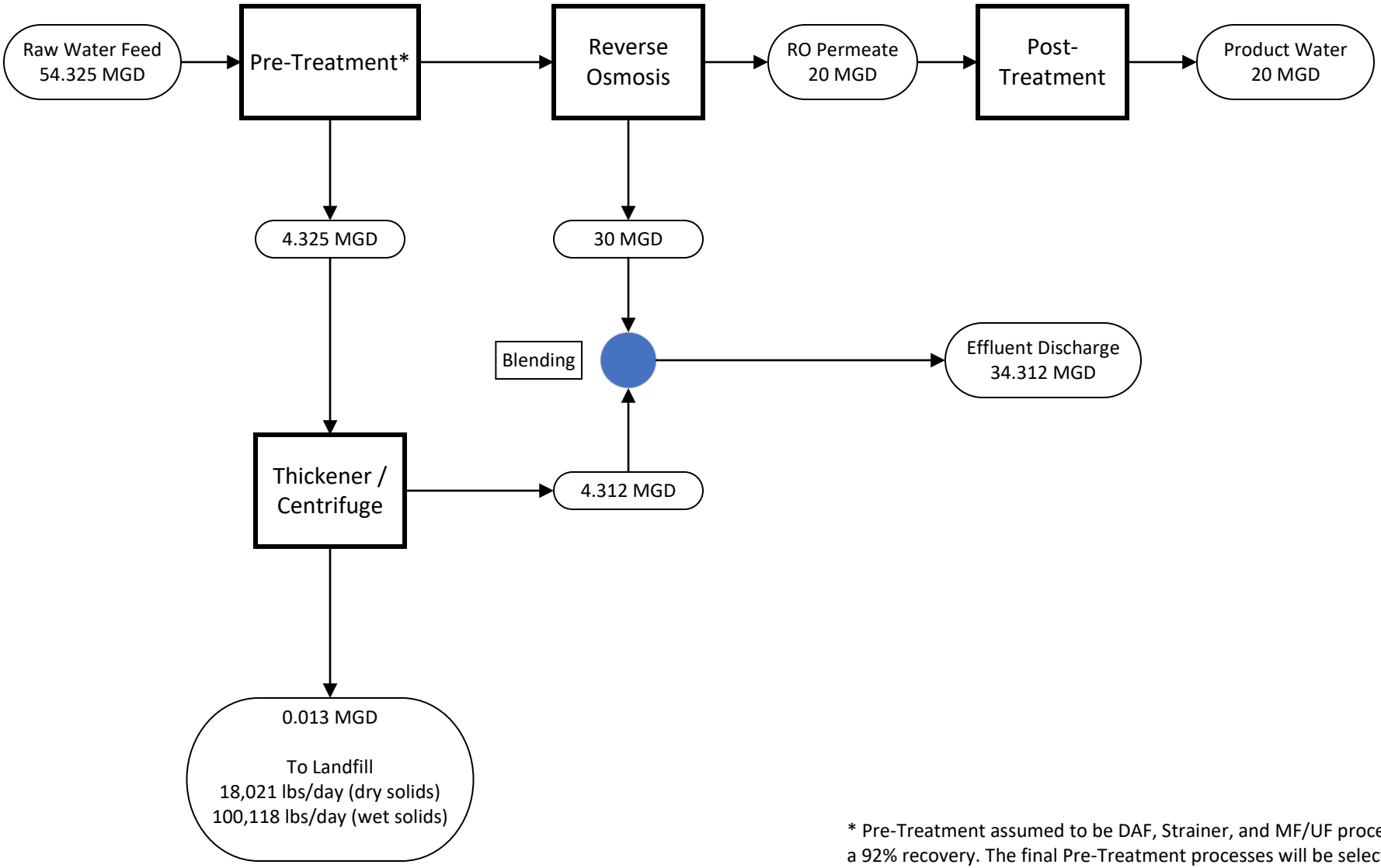
City of Corpus Christi
Proposed Inner Harbor Desalination Plant
Water Balance Sheet - Ultimate 30 MGD Plant

Date of Revision:		11/18/2021		
Design Process	Manufacturer or approved equal	Design parameters	Recovery	
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%	
Rapid Mixer	Lightening	G value 1,000/sec	100%	
Clarifier-Dissolved Air Flotation	Xylem	10 gpm/sf	98.00%	
Strainer self-cleaning	Arkal Filtration	300 micron discs	98.86%	
Microfiltration membranes	PALL, Inc.	Microza	95.00%	
Cartridge Filters	Lenntech	5 microns	100%	
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%	
Carbon dioxide addition		pH < 6.5	100%	
Calcite filters (alkalinity)		pH > 8.3	100%	
Chlorination / ammonia		Chloramine < 4 mg/l	100%	
Clearwell Storage				
High Service Pump Station				
Solids Thickener				
Centrifuge				
Solids to landfill (daily cover)				

Water Balance:		81.49 MGD
Clar-DAF sludge	98.00%	79.86 MGD
Strainer backwash	98.86%	78.95 MGD
MF Membranes Backwash	95.00%	75.00 MGD
RO permeate recovery	40.00%	
RO Brine reject	60.00%	
Decant (supernatant) thickener	60.00%	
Centrifuge filtrate return	99.25%	

Raw Water Total Feed:		
Permeate	**30**	**MGD**
RO Feed Water	75.00	MGD
Raw Water Feed Annual Average	**81.487**	**MGD**
Raw Water Maximum Daily Peak /Average Ratio	**120.00%**	
Raw Water Maximum Daily	**97.78**	**MGD**
TPDES Discharge :		
RO Brine discharge	45.00	MGD
Clar-DAF	1.63	MGD
Strainer	0.91	MGD
MF Backwash	3.95	MGD
Sub-total	6.487	MGD
Thickener Decant	3.8925	MGD
Centrifuge filtrate	2.5755	MGD
Total thickener/centrifuge discharge	6.468	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**51.468**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**61.76**	**MGD**
Sludge Disposal to landfill	0.019	MGD

City of Corpus Christi La Quinta Seawater Desalination
20 MGD Water Production / RO Recovery 40%
Water Balance Flow Chart



* Pre-Treatment assumed to be DAF, Strainer, and MF/UF processes with a 92% recovery. The final Pre-Treatment processes will be selected by the General Contractor to achieve a recovery ≥ 92%

City of Corpus Christi
Proposed La Quinta Channel Desalination Plant
Water Balance Sheet - Initial 20 MGD Plant

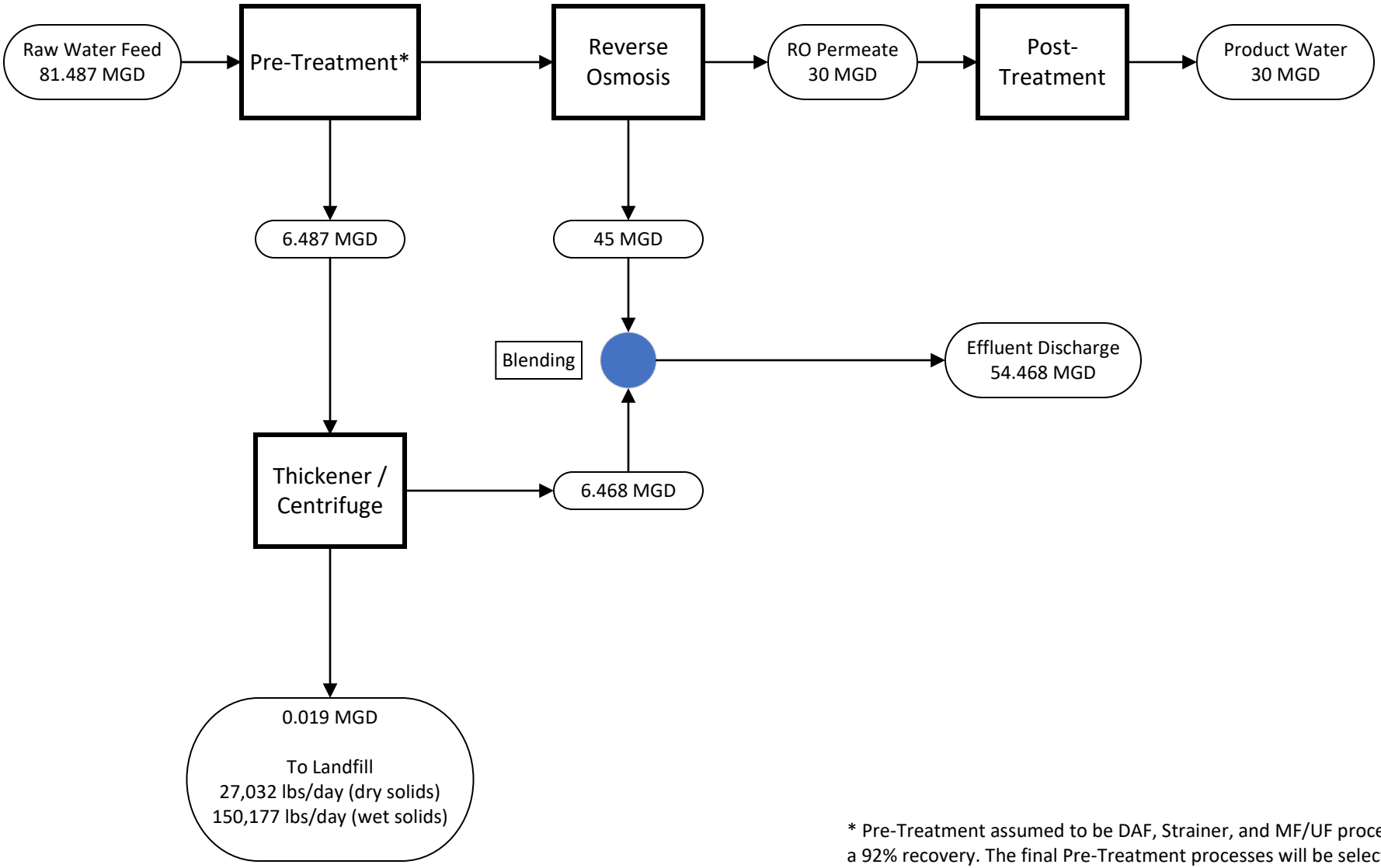
Date of Revision: 11/18/2021

Design Process	Manufacturer or approved equal	Design parameters	Recovery
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%
Rapid Mixer	Lightening	G value 1,000/sec	100%
Clarifier-Dissolved Air Flotation	Xylem	10 gpm/sf	98.00%
Strainer self-cleaning	Arkal Filtration	300 micron discs	98.86%
Microfiltration membranes	PALL, Inc.	Microza	95.00%
Cartridge Filters	Lenntech	5 microns	100%
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%
Carbon dioxide addition		pH < 6.5	100%
Calcite filters (alkalinity)		pH > 8.3	100%
Chlorination / ammonia		Chloramine < 4 mg/l	100%
Clearwell Storage			
High Service Pump Station			
Solids Thickener			
Centrifuge			
Solids to landfill (daily cover)			

Water Balance:		54.32 MGD
Clar-DAF sludge	98.00%	53.24 MGD
Strainer backwash	98.86%	52.63 MGD
MF Membranes Backwash	95.00%	50.00 MGD
RO permeate recovery	40.00%	
RO Brine reject	60.00%	
Decant (supernatant) thickener	60.00%	
Centrifuge filtrate return	99.25%	

Raw Water Total Feed:		
Permeate	**20**	**MGD**
RO Feed Water	50.00	MGD
Total Raw Water Feed	**54.325**	**MGD**
Maximum Daily Raw Water Peaking Factor	**120.00%**	
Maximum Daily Raw Water Total Feed	**65.19**	**MGD**
TPDES Discharge :		
RO Brine discharge	30.00	MGD
Clar-DAF	1.09	MGD
Strainer	0.61	MGD
MF Backwash	2.63	MGD
Sub-total	4.325	MGD
Thickener Decant	2.59	MGD
Centrifuge filtrate	1.72	MGD
Total thickener/centrifuge discharge	4.312	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**34.312**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**41.17**	**MGD**
Sludge Disposal to landfill	0.013	MGD

City of Corpus Christi La Quinta Seawater Desalination
30 MGD Water Production / RO Recovery 40%
Water Balance Flow Chart



* Pre-Treatment assumed to be DAF, Strainer, and MF/UF processes with a 92% recovery. The final Pre-Treatment processes will be selected by the General Contractor to achieve a recovery ≥ 92%

City of Corpus Christi
Proposed La Quinta Channel Desalination Plant
Water Balance Sheet - Expanded 30 MGD Plant

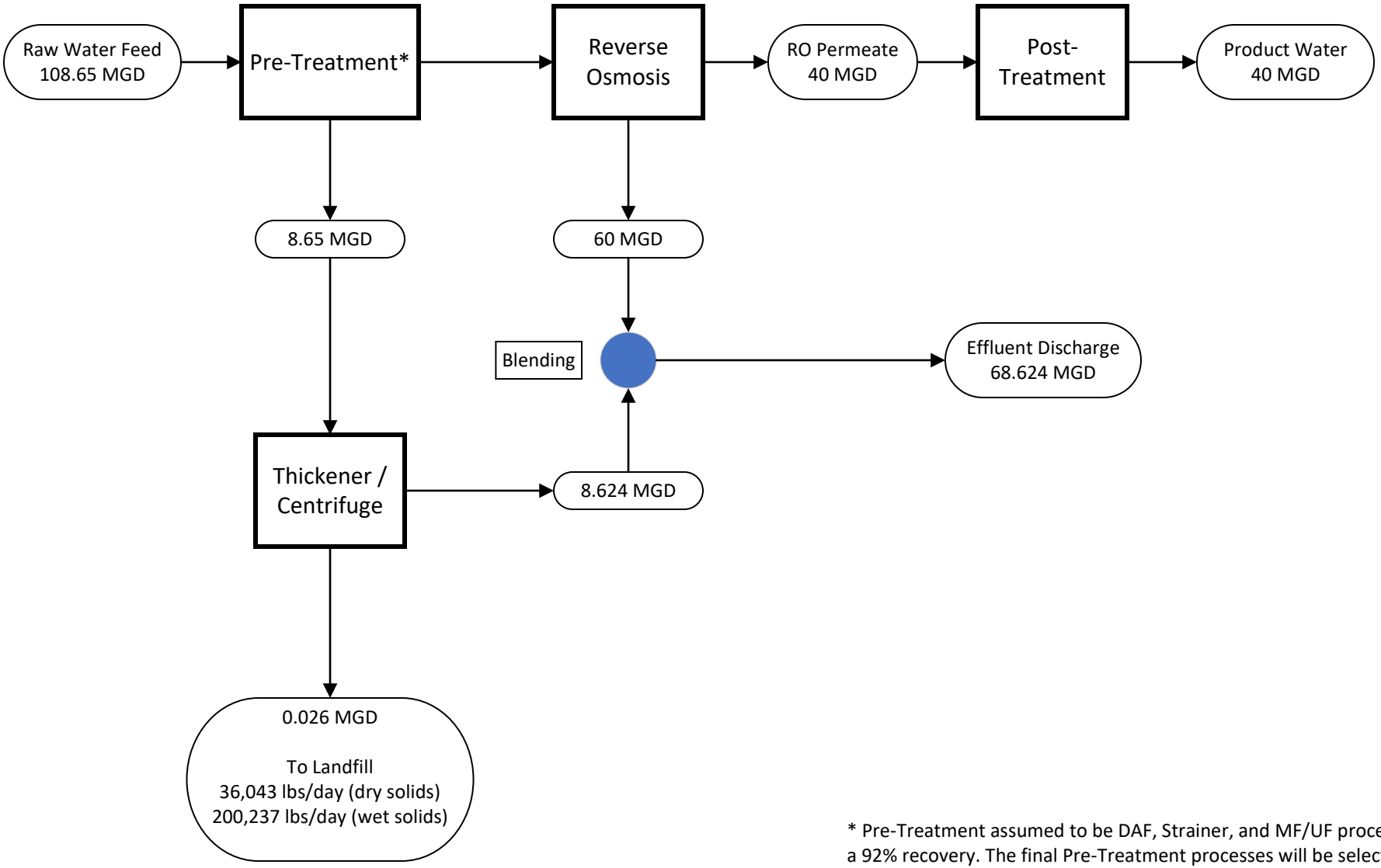
Date of Revision: 11/18/2021

Design Process	Manufacturer or approved equal	Design parameters	Recovery
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%
Rapid Mixer	Lightening	G value 1,000/sec	100%
Clarifier-Dissolved Air Flotation	Xylem	10 gpm/sf	98.00%
Strainer self-cleaning	Arkal Filtration	300 micron discs	98.86%
Microfiltration membranes	PALL, Inc.	Microza	95.00%
Cartridge Filters	Lenntech	5 microns	100%
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%
Carbon dioxide addition		pH < 6.5	100%
Calcite filters (alkalinity)		pH > 8.3	100%
Chlorination / ammonia		Chloramine < 4 mg/l	100%
Clearwell Storage			
High Service Pump Station			
Solids Thickener			
Centrifuge			
Solids to landfill (daily cover)			

Water Balance:		81.49 MGD
Clar-DAF sludge	98.00%	79.86 MGD
Strainer backwash	98.86%	78.95 MGD
MF Membranes Backwash	95.00%	75.00 MGD
RO permeate recovery	40.00%	
RO Brine reject	60.00%	
Decant (supernatant) thickener	60.00%	
Centrifuge filtrate return	99.25%	

Raw Water Total Feed:		
Permeate	**30**	**MGD**
RO Feed Water	75.00	MGD
Total Raw Water Feed	**81.487**	**MGD**
Maximum Daily Raw Water Peaking Factor	**120.00%**	
Maximum Daily Raw Water Total Feed	**97.78**	**MGD**
TPDES Discharge :		
RO Brine discharge	45.00	MGD
Clar-DAF	1.63	MGD
Strainer	0.91	MGD
MF Backwash	3.95	MGD
Sub-total	6.487	MGD
Thickener Decant	3.8925	MGD
Centrifuge filtrate	2.5755	MGD
Total thickener/centrifuge discharge	6.468	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**51.468**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**61.76**	**MGD**
Sludge Disposal to landfill	0.019	MGD

City of Corpus Christi La Quinta Seawater Desalination
40 MGD Water Production / RO Recovery 40%
Water Balance Flow Chart



* Pre-Treatment assumed to be DAF, Strainer, and MF/UF processes with a 92% recovery. The final Pre-Treatment processes will be selected by the General Contractor to achieve a recovery ≥ 92%

City of Corpus Christi
Proposed La Quinta Channel Desalination Plant
Water Balance Sheet - Ultimate 40 MGD Plant

Date of Revision: 11/18/2021

Design Process	Manufacturer or approved equal	Design parameters	Recovery
Submerged fine self-cleaning screen	Johnson	2.0 mm openings; velocity < 0.5 fps	100%
Rapid Mixer	Lightening	G value 1,000/sec	100%
Clarifier-Dissolved Air Flotation	Xylem	10 gpm/sf	98.00%
Strainer self-cleaning	Arkal Filtration	300 micron discs	98.86%
Microfiltration membranes	PALL, Inc.	Microza	95.00%
Cartridge Filters	Lenntech	5 microns	100%
Reverse Osmosis	Dow Film-Tec Seawater	8 gfd	40%
Carbon dioxide addition		pH < 6.5	100%
Calcite filters (alkalinity)		pH > 8.3	100%
Chlorination / ammonia		Chloramine < 4 mg/l	100%
Clearwell Storage			
High Service Pump Station			
Solids Thickener			
Centrifuge			
Solids to landfill (daily cover)			

Water Balance:			108.65 MGD
Clar-DAF sludge		98.00%	106.48 MGD
Strainer backwash		98.86%	105.26 MGD
MF Membranes Backwash		95.00%	100.00 MGD
RO permeate recovery		40.00%	
RO Brine reject		60.00%	
Decant (supernatant) thickener		60.00%	
Centrifuge filtrate return		99.25%	

Raw Water Total Feed:		
Permeate	**40**	**MGD**
RO Feed Water	100.00	MGD
Total Raw Water Feed	**108.650**	**MGD**
Maximum Daily Raw Water Peaking Factor	**120.00%**	
Maximum Daily Raw Water Total Feed	**130.38**	**MGD**
TPDES Discharge :		
RO Brine discharge	60.00	MGD
Clar-DAF	2.17	MGD
Strainer	1.21	MGD
MF Backwash	5.26	MGD
Sub-total	8.650	MGD
Thickener Decant	5.19	MGD
Centrifuge filtrate	3.43	MGD
Total thickener/centrifuge discharge	8.624	MGD
Total Discharge: RO Brine + Thickener/Centrifuge Return	**68.624**	**MGD**
Maximum Daily Discharge	**120.00%**	
Maximum Daily Discharge	**82.35**	**MGD**
Sludge Disposal to landfill	0.026	MGD

Attachment H
Supplemental Information

Ambient Background Flow Velocity Report

Water Quality Characterization Protocol and Report

MEMORANDUM

FREESE AND NICHOLS
Innovative approaches
Practical results
Outstanding service

800 N. Shoreline Blvd., Suite 1600N + Corpus Christi, Texas 78401 + 361-561-6500 + FAX 817-735-7491 www.freese.com

SUBJECT: Background and Tidal Current Velocity Studies

DATE: 1/15/2020

PROJECT: City of Corpus Christi Seawater Desalination

Purpose

Understand ambient water velocities, tidal influence, and hydrodynamics in the Inner Harbor Ship Channel and La Quinta Channel. This will be accomplished by partnering with the Texas Water Development Board (TWDB) to borrow Acoustic Doppler Current Profiler (ADCP) instruments and with land-owners to deploy those instruments in the vicinity of proposed seawater desalination plant outfall locations. Ambient velocity and hydrodynamics data will be incorporated into the concentrate diffusion modeling in order to more appropriately predict concentrate diffusion in the receiving water bodies.

Instrumentation

SonTek SL 500 Series (side-looker ADCP) (https://www.sontek.com/sontek-sl-series). To measure direction and velocity of flow in the Inner Harbor Channel and La Quinta Channel up to 400 feet from the instrument location. Instruments are on loan from the TWDB.

- Weight – 14 pounds
- Mounting dimensions: 14 inches wide by 9 inches high
- External power source required

Protocol

ADCPs will be deployed in the vicinities of the proposed outfall locations. One instrument will be installed in the La Quinta Channel at a depth of 15 feet and one will be installed in the Inner Harbor Ship Channel at a depth of 21 feet. The instruments will be deployed once and retrieved after 3-6 months of data collection.

The ADCPs will be configured to record data in 10 cells along the instrument's beam. Each cell is approximately 11-meters long. Data points will be logged as averages of current direction and velocity in each cell for 5 minutes out of every 15-minute interval.

Effort-to-Date

The Freese and Nichols Team performed site assessments of proposed outfall locations on both the Inner Harbor Ship Channel and La Quinta Channel. Prior to ADCP deployment, the Team ran transects with a down-looking ADCP (SonTek RiverSurveyor) to record snapshots of the channel bathymetry and current velocities and directions.

One ADCP was installed in the La Quinta Channel on November 13, 2019. Data were downloaded on December 20, 2019 and provided to Plummer Associates for incorporation into the concentrate diffusion modeling parameters. Modeling is ongoing.

Coordination with the landowner is ongoing for the outfall on the Inner Harbor Ship Channel. The ADCP will likely be installed in February at this location. As data are collected and retrieved from the instrument, they will be incorporated into the concentrate diffusion model for the proposed outfall on the Inner Harbor Ship Channel.

Path Forward

After the completion of the ambient velocity study, a summary report will be provided to TCEQ. Data will be incorporated into the modeling for both Inner Harbor and La Quinta Channel concentrate diffusion.

MEMORANDUM

FREESE AND NICHOLS
Innovative approaches
Practical results
Outstanding service

800 N. Shoreline Blvd., Suite 1600N • Corpus Christi, Texas 78401 • 361-561-6500 • FAX 817-735-7491 www.freese.com

TO: Steve Ramos

CC: Dan Grimsbo

FROM: Jason Cocklin, P.E.

SUBJECT: Seawater Desalination Source Water Characterization TM

DATE: August 30, 2019

PROJECT: Seawater Desalination

Seawater Desalination Source Water Characterization

Duration: 1 year

To characterize seawater that will potentially be used as a raw water source for a proposed seawater desalination facility, Freese and Nichols, Inc. (FNI) developed a year-long sampling plan, with water quality samples to be collected twice monthly, monthly, or quarterly depending on the parameter. The City will contract with a lab to collect samples from two (2) preferred intake locations corresponding to two preferred sites for the proposed desalination facility. Parameters and sampling frequencies are provided in Table 1.

Table 1: Seawater Source Water Characterization Sampling Parameters and Frequencies

Parameter	Units	MCL	Sampling Frequency
Inorganics 30 TAC 290.104			
Antimony	mg/L	0.006	Monthly
Arsenic	mg/L	0.01	Monthly
Asbestos	mg/L	7 million fibers/liter (longer than 10 µm)	Monthly
Barium	mg/L	2	Monthly
Beryllium	mg/L	0.004	Monthly
Cadmium	mg/L	0.005	Monthly
Chromium	mg/L	0.1	Monthly
Cyanide	mg/L	0.2 (as free Cyanide)	Monthly
Fluoride	mg/L	4	Monthly
Mercury	mg/L	0.002	Monthly
Nitrate	mg/L	10 (as Nitrogen)	Monthly
Nitrite	mg/L	1 (as Nitrogen)	Monthly
Nitrate + Nitrite (Total)	mg/L	10 (as Nitrogen)	Monthly
Perchlorate	mg/L	0.056 (MCL proposed by EPA; currently in comment period)	Monthly

Selenium	mg/L	0.05	Monthly
Thallium	mg/L	0.002	Monthly
Secondary Consituent 30 TAC 290.105			
Aluminum (Total)	mg/L	0.05 to 0.2	Monthly
Chloride	mg/L	300	Monthly
Color (true)	color units	15	Monthly
Copper	mg/L	1.0	Monthly
Corrosivity	Langlier index	Non-Corrosive	Monthly
Fluoride	mg/L	2.0	Monthly
Foaming Agents	mg/L	0.5	Monthly
Hydrogen sulfide	mg/L	0.05	Monthly
Iron (Total)	mg/L	0.3	Monthly
Manganese	mg/L	0.05	Monthly
Odor	TON	3 TON	Monthly
pH	units	> 7.0	Monthly
Silver	mg/L	0.1	Monthly
Sulfate	mg/L	300	Monthly
Total Dissolved Solids	mg/L	1,000	Monthly
Zinc	mg/L	5.0	Monthly
Synthetic Organics 30 TAC 290.107			
Alachlor	mg/L	0.002	Quarterly
Atrazine	mg/L	0.003	Quarterly
Benzopyrene	mg/L	0.0002	Quarterly
Carbofuran	mg/L	0.04	Quarterly
Chlordane	mg/L	0.002	Quarterly
Dalapon	mg/L	0.2	Quarterly
Dibromochloropropane	mg/L	0.0002	Quarterly
Di(2-ethylhexyl)adipate	mg/L	0.4	Quarterly
Di(2-ethylhexyl)phthalate	mg/L	0.006	Quarterly
Dinoseb	mg/L	0.007	Quarterly
Diquat	mg/L	0.02	Quarterly
Endothall	mg/L	0.1	Quarterly
Endrin	mg/L	0.002	Quarterly
Ethylene dibromide	mg/L	0.00005	Quarterly
Glyphosate	mg/L	0.7	Quarterly
Heptachlor	mg/L	0.0004	Quarterly
Heptachlor epoxide	mg/L	0.0002	Quarterly
Hexachlorobenzene	mg/L	0.001	Quarterly
Hexachlorocyclopentadiene	mg/L	0.05	Quarterly

Lindane	mg/L	0.0002	Quarterly
Methoxychlor	mg/L	0.04	Quarterly
N-Nitrosodimethylamine (NDMA)	mg/L	Emerging contaminant	Quarterly
Oxamyl (Vydate)	mg/L	0.2	Quarterly
Pentachlorophenol	mg/L	0.001	Quarterly
Picloram	mg/L	0.5	Quarterly
Polychlorinated biphenyls (PCBs)	mg/L	0.0005	Quarterly
Simazine	mg/L	0.004	Quarterly
Toxaphene	mg/L	0.003	Quarterly
2,3,7,8-TCDD (Dioxin)	mg/L	3×10^{-8}	Quarterly
2,4,5-TP	mg/L	0.05	Quarterly
2,4-D	mg/L	0.07	Quarterly
Volatile Organics 30 TAC 290.107			
1,1-Dichloroethylene	mg/L	0.007	Quarterly
1,1,1-Trichloroethane	mg/L	0.2	Quarterly
1,1,2-Trichloroethane	mg/L	0.005	Quarterly
1,2-Dichloroethane	mg/L	0.005	Quarterly
1,2-Dichloropropane	mg/L	0.005	Quarterly
1,2,4-Trichlorobenzene	mg/L	0.07	Quarterly
Benzene	mg/L	0.005	Quarterly
Carbon tetrachloride	mg/L	0.005	Quarterly
cis-1,2-Dichloroethylene	mg/L	0.07	Quarterly
Dichloromethane	mg/L	0.005	Quarterly
Ethylbenzene	mg/L	0.7	Quarterly
Monochlorobenzene	mg/L	0.1	Quarterly
o-Dichlorobenzene	mg/L	0.6	Quarterly
para-Dichlorobenzene	mg/L	0.075	Quarterly
Styrene	mg/L	0.1	Quarterly
Tetrachloroethylene	mg/L	0.005	Quarterly
Toluene	mg/L	1	Quarterly
trans-1,2-Dichloroethylene	mg/L	0.1	Quarterly
Trichloroethylene	mg/L	0.005	Quarterly
Vinyl chloride	mg/L	0.002	Quarterly
Xylenes (total)	mg/L	10	Quarterly
Radionuclide 30 TAC 290.108			
Gross Alpha Particle Activity	pCi/L	15	Quarterly
Beta Particle and Photon	pCi/L	40 CFR §141.66(d)	Quarterly

Radioactivity			
Radium-226	pCi/L	*	Quarterly
Radium-228	pCi/L	*	Quarterly
Combined Radium 226 + 228	pCi/L	*sum ≤ 5	Quarterly
Uranium	µg/L	30	Quarterly
Radon-222	pCi/L	300 MCL or 4,000 AMCL	Quarterly
Microbial 30 TAC 290.109			
Coliform, Fecal	MPN/100 mL		Twice monthly
Coliform, Total	MPN/100 mL		Twice monthly
Cryptosporidium	oocysts/sample volume		Twice monthly
Enterococci	CFU/100 mL	35 CFU/100 mL	Twice monthly
Giardia	cysts/sample volume		Twice monthly
Heterotrophic Plate Count	CFU/mL		Twice monthly
Plankton Community			
Comb Jellies and other large plankton			Twice monthly
Membrane Parameters			
Algae Count	count/mL		Monthly
Alkalinity, Total as $CaCO_3$	mg/L		Monthly
Aluminum (Dissolved)	mg/l		Monthly
Ammonia (as N)	mg/L		Monthly
Ammonium (NH_4)	mg/L		Monthly
Bicarbonate	mg/L		Monthly
Boron	mg/L	2.4 Recommended by World Health Organization	Monthly
Bromide	mg/L		Monthly
Calcium	mg/L		Monthly
Carbon Dioxide	mg/L		Monthly
Cesium	mg/L		Monthly
Conductivity	µmhos/cm		Monthly
Dissolved Organic Carbon	mg/L		Monthly
Dissolved Oxygen	mg/L		Monthly
Hardness, Total as $CaCO_3$	mg/L		Monthly
Iron (Dissolved)	mg/l		Monthly
Lead	mg/L	0.015 Action Level	Monthly
Magnesium	mg/L		Monthly
Oil and Grease	mg/L		Monthly
Oxidation Reduction Potential (ORP)	mV		Monthly

Phosphorus, Total	mg/L		Monthly
Potassium	mg/L		Monthly
Salinity (Field)			Monthly
Silica, Total (Colloidal)	mg/L		Monthly
Silica, Reactive			Monthly
Silica, Dissolved	mg/L		Monthly
Silicon, Total	mg/L		Monthly
Silt Density Index			Monthly
Sodium	mg/L	EPA is currently listing sodium on their Candidate Contaminant List to be regulated. The World Health Organization recommends a threshold of 200 mg/L for sodium.	Monthly
Strontium	mg/L		Monthly
Temperature	°F	$< 90^0$ F	Monthly
Tin	mg/L		Monthly
Total Petroleum Hydrocarbon (TPH)	mg/L	5	Monthly
Total Organic Carbon	mg/L	Reduction 30 TAC 290.112 (b)(1)	Monthly
Total Suspended Solids	mg/L		Monthly
Turbidity	NTU	0.5 combined; 0.3 individual can never exceed 5 NTU	Twice monthly, to coincide with microbial testing
UV254	nm wavelength		Monthly

Seawater Desalination Regulated Water Quality Sampling Schedule

Tentative Dates	Sampling Event			Date Sampled
	Half-Monthly	Monthly	Quarterly	
	HM-1	M-1	Q-1	August 29, 2019
	HM-2			September 13, 2019
	HM-3	M-2		October 2, 2019
	HM-4			October 17, 2019
	HM-5	M-3		November 4, 2019
	HM-6			November 19, 2019
	HM-7	M-4	Q-2	December 9, 2019
	HM-8			6 Jan, 2020
20-24 Jan, 2020	HM-9	M-5		
3-7 Feb, 2020	HM-10			
17-21 Feb, 2020	HM-11	M-6		
2-6 Mar, 2020	HM-12			
16-20 Mar, 2020	HM-13	M-7	Q-3	
30 Mar - 3 Apr, 2020	HM-14			
13-17 Apr, 2020	HM-15	M-8		
27-30 Apr, 2020	HM-16			
11-15 May, 2020	HM-17	M-9		
25-29 May, 2020	HM-18			
8-12 Jun, 2020	HM-19	M-10	Q-4	
22-26 Jun, 2020	HM-20			
6-10 Jul, 2020	HM-21	M-11		
20-24 Jul, 2020	HM-22			
3-7 Aug, 2020	HM-23	M-12		
17-21 Aug, 2020	HM-24			